

# Network

Railways of Australia

Quarterly Volume 20, No. 4

Price: \$2.50



ISSN 0159-7302

'The Alice' to  
wonderland  
(page 6)

\$35m. for STA  
locos (page 28)

AN's family fun day  
(page 31)

Australian diesel  
railcars (page 44)



# HUMES BOX CULVERTS



**They're  
getting bigger  
and  
more  
versatile  
all the  
time!**

Maybe not this big... but who knows?

Humes Box Culverts, especially the large variety, are turning up in all kinds of unexpected places. Our experience with major projects throughout Australia has displayed the many possible uses of this versatile product. Now it reaches out to spans of over 6 metres.

These versatile units are used extensively in **WATERWAYS**: where low headroom is required. **INSTANT BRIDGING**: permanent and quick restoration projects. **UNDERGROUND CROSSINGS**: for pedestrian and stock traffic. **PROJECTS CARRYING HEAVY LOADS**: e.g. large earth fills or heavy wheel loads.



For size, range, manufacture, jointing, design details and relevant additional information, send back the coupon below. Or phone your nearest Humes Sales Office for expert advice.

Talk to the team at  
**HUMES**  
The all-round Australian



Please send detailed brochure on Box Culverts.

Name

Company

Address

HC430/R

Humes Limited (Inc. in Vic.), Concrete Division, World Trade Centre, P.O. Box 31, Melbourne, Victoria, 3005. Phone (03) 611 3311.



# Network

## Railways of Australia Quarterly

Published by the Railways of Australia Committee, 325 Collins Street, Melbourne, 3000. Tel. 61 2545

Railways of Australia is an association of the government-owned railway systems, comprising:

*Australian National • The State Rail Authority of New South Wales • Queensland Railways • State Transport Authority - Vic • Westrail.*

Editor: Alex Greig

## Advertising Enquiries:

Advertising Enquiries to be addressed to The Advertising Manager, Railways of Australia 'Network',

325 Collins Street, Melbourne,

vic. 3000. Tel. 61 2545 or the

following State representatives:

N.S.W.: Patrick Carr, Commercial Union Assurance Building, 109 Pitt Street, Sydney, N.S.W. 2000. Tel. 232 1026, 232 8072

Qld.: Terry Garry Media Pty. Ltd., 239 Milton Road, Milton, Qld. 4064. Tel. 36 7877. Telex TGM 43728

S.A.: Market Media Associates, 79 McLaren Street, Adelaide, S.A. 5000 Tel. 223 6344, 223 6629

W.A.: Wilson's Editorial Services, P.O. Box 40, Balga, 6061. Tel. (09) 349 5798

*Items appearing in Network may be reproduced. Acknowledgement of the source is requested.*

## Contributions:

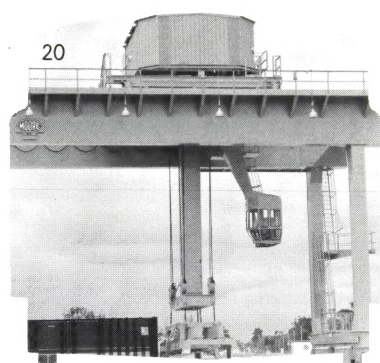
Articles, news and/or photographs (with captions) — covering any phase of rail activity are invited for consideration by the Editor, R.O.A. Network, 325 Collins Street, Melbourne, 3000.

## Subscriptions:

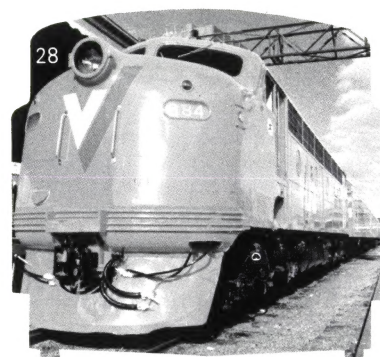
Within Australia, \$12 per annum (posted). Overseas, A\$16 per annum (surface mail).



State Rail Authority of NSW



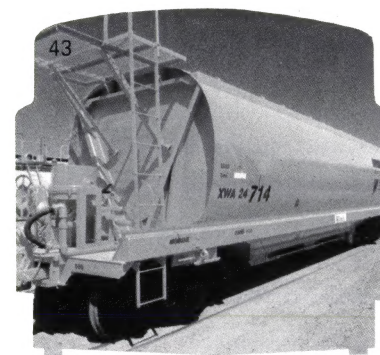
Queensland Railways



State Transport Authority - Vic



Australian National



Westrail

# Contents

Executive Director's report	page 5
'The Alice' to wonderland	6
Westrail study on heavy road haul	9
SRA creates light at end of the tunnel	10
NCRE symposium	14
The 'Menzies' predictions	16
Minister opens training centre	18
Trackfast Centre Chullora	22
Books	24
\$35 million for STA locos	28
AN's family fun day	31
America's great steam trains	34
Priceless steam engine restored	41
New rollingstock for Adelaide	43
Diesel railcars . . . the Australian evolution	44
Log Cabin Fine Cut railroad	50
Window seat	58
Interview	62

*Our only requirement of writers and personalities who contribute to Network is that they be informative or entertaining and that their subject has relevance to the wide interests of railwaymen today. Naturally, there will be occasions when their viewpoints or opinions run contrary to those of the editor or to Railways of Australia. We must accept that these differences are among the elements essential to the presentation of a lively and interesting magazine.*



# The other great train robbery.



It's easy to think you're saving money on locomotive maintenance by buying non-genuine replacement parts. But saving a few dollars here and there could end up costing you a fortune all along the line. In re-repair costs. Lost earning hours. Lost business. All for the want of genuine EMD parts that have been specifically made for your Clyde-GM locomotives.

No one can make EMD spares better than the people who

made the original equipment. So we back them with our 160,000 km/12 month warranty. Something you'll never get with fakes.

And when you add the time and money you'll save through our fast delivery (from vast stocks) you'll find that fake spares just don't pay – they're little short of daylight robbery.



in association with



The Clyde Engineering Company Pty Limited  
1 Factory Street, Granville,  
NSW 2142  
Telephone (02) 6822111

A member of The Clyde Industries Group of Companies.

CE12



# Here's to 'The Alice' bound for wonderland

For some time now Railway Systems have been conscious of the need for a major tourist train which would link two of Australia's greatest attractions — Sydney and its environs, and the very heart of our country, Alice Springs. Just over twelve months ago a trial run was made with media and travel agency guests and the participants were most enthusiastic about the concept; it was considered a regular service would have great potential for the tourism industry.

It is my pleasure to advise 'Network' readers that 'The Alice' commenced a regular weekly service on 21 November.

This is Australia's first new intersystem service since the introduction of the now famous 'Indian Pacific' in 1970. The new service is provided by Australian National and the State Rail Authority of New South Wales, and consists of all first class sleepers, providing accommodation for 142 passengers.

Leaving Sydney at 1.40pm every Monday, 'The Alice' arrives in Alice Springs just after midday on Wednesday, and leaves again at 5.00pm for the return trip to Sydney. 'The Alice' provides the connoisseur tourist with a travel experience which is quite unique.

The train has two club cars, a dining car as well as 'Roomette' and 'Twinette' sleeping cars. Similar to the famed 'Indian Pacific', this service to the heart of Australia will surely earn its place as one of the most exciting rail journeys in the world.

Australia's travel industry has enthused over 'The Alice' — tour operators are anxious to incorporate the new service into packaged tours; the SRA of NSW already have a choice of three 12 day and one 10 day tours providing quality accommodation and visits to the many attractions of the 'Red Centre'.

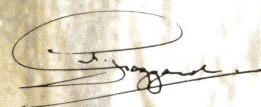
My choice of the SRA tours is the 12 day "Wonderland Adventure", which combines 'The Alice' with visits to Ayers Rock, the Olgas, and takes you through the MacDonnell Ranges and the James Range. And lots more!

The needs of the traveller have been carefully considered on 'The Alice'. On its westbound journey special tourist stops are made at Broken Hill where a free coach trip covers the city sights, the SA/NT border, Kulgera, the 'Iron Man' sculpture, and the famous Finke River. The total route distance is 2,857km and the journey takes 47

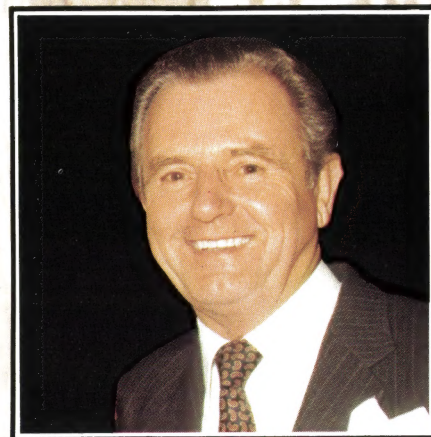
hours travelling via Broken Hill, Port Pirie, and Tarcoola.

There's no shortage of entertainment on the train — a piano in the lounge car, videotape facilities and recorded musical programmes cater for all tastes. A wealth of Australia's inbound tourist traffic arrives in Sydney; many visitors from overseas then wish to visit Central Australia — Alice Springs and Ayers Rock. 'The Alice' makes an ideal connection. Scenic Australia is laid at the travellers feet — with the Blue Mountains, prosperous farming and grazing properties in New South Wales, the mining centre of Broken Hill and the desert regions all forming part of a mosaic the traveller will never forget. Overseas visitors travelling on an "Austrailpass" will find 'The Alice' a key service when planning their travel itineraries — for, when dovetailed with other services such as the 'Ghan', the 'Overland' and the 'Southern Aurora', even in 14 days, the tourist can cross four state borders and see a great deal of representative Australia.

'The Alice' adds a new dimension to Railways of Australia services. I personally commend the train to 'Network' readers; I am confident 'The Alice' and its journey to 'Wonderland' will provide a holiday memory you will treasure for years to come.



N. J. GAZZARD  
EXECUTIVE DIRECTOR



N. J. Gazzard (F.C.I.T.)

#### Editors Note:

Reservations for 'The Alice' are available by 'phoning (02) 217 8818



epic

# 'THE ALICE' TO AUSTRALIA

Australian rail history was made on November 14 with the official inauguration of the new Sydney / Alice Springs direct service which has been called "The Alice".

The new service, which will assuredly become one of the great rail journeys of the world, was "launched" in

Sydney by the Deputy Chief Executive of the State Rail Authority of NSW, Mr R. D. Christie at a ceremony held on No. 1 Platform, Sydney Station.

Just prior to departure of the first train, the traditional bottle of champagne was broken over the leading locomotive.

The NSW Railway Institute Band added to the excitement of the occasion, entertaining the hundreds of onlookers who gathered to witness the historic departure.

"The Alice" — an Indian-Pacific look-alike — now runs from Sydney every Monday, and from Alice Springs every



*Passengers on 'The Alice' enjoy the finest cuisine and wines in the dining car when viewing the everchanging scenery on the 2,857 km journey.*





# ALIA'S WONDERLAND

Wednesday on the fascinating 2,857 kilometre journey.

Departing Sydney at 1.40pm the train arrives Alice Springs at 12.25pm on Wednesday. After cleaning and servicing, "The Alice" departs the same day at 5.00pm, arriving back in Sydney

at 3.50pm on the following Friday afternoon.

Fares have been realistically set at \$311.50 adult single and \$200.50 for children, eligible pensioners and students. This includes first class sleepers and all meals en route.

*(continued on page 52)*



*The new Sydney / Alice Springs direct service makes a short pause at Kulgera and gets checked out by a local resident.*



# The clip



Pandrol Australia Pty Ltd,  
7 Bessemer Street, Blacktown, NSW 2148.  
Ph: (02) 671 6555 Telex: AA24133  
28-30 Davison Street, Maddington, WA 6109.  
Ph: (09) 459 5255 Telex: AA94531



# WA study shows road user charges anomaly

Two concurrent studies recently undertaken by Westrail have established a weight of evidence which indicates that there is an under recovery of road user charges in Western Australia particularly attributable to heavy haulage road vehicles.

The studies were made by Westrail in response to an invitation by the Minister for Transport Mr J. F. Grill. Both reports will be used to aid policy planning, pending a more detailed and comprehensive assessment of the position in WA by a study team which includes Main Roads Department and road transport organisation representatives.

The interim report points out that the recovery of road use costs from heavy road transport vehicles in competition with rail, influences pricing policies, the modal split of traffic between road and rail and the economic efficiency of the transport system.

Since 1977 there have been significant changes affecting the level of recovery of road user costs. These basically are:

- The withdrawal of the road maintenance tax and the introduction of a State levy tax on motor spirits and diesel fuel used by road vehicles.
- The lifting of the 50% concession of road registration fees thereby doubling registration costs.
- The placement of a Commonwealth Government excise duty tax on Westrail for use of fuel on rail which adds approximately \$4m per annum to Westrail's cost.

The Western Australia Land Transport Policy introduced in April 1979 was based heavily on the premise that provided road and rail transport service met operating infrastructure and community costs attributed to them, free competition between modes would be the most effective means of promoting an economically efficient transport system.

However, Westrail's interim assessment of the effect of these changes have made to the recovery of costs by heavy commercial road

vehicles indicate that the under payment is substantial. At best road user charges would be recovering only 57% of road user costs attributed to these heavy trucks.

The findings reveal that if these anomalies are to continue the under recovery of costs from road transport operations will have a detrimental effect on the financial viability of Westrail and the economic effectiveness of the transport system.

Under the new Land Transport Policy Westrail is expected to price its future freight services to meet all its costs.

The comparative price for rail and road services will lead to an uneconomic diversion of traffic from rail to road.

Should deregulation be extended to grain the report assessed that approximately 500,000 tonnes of grain would be lost to rail and there would be a continuous increase in Westrail's deficit.

In the later study, made to refine the initial assessment of the levels of recovery of road user costs from freight transport road vehicles in competition with Westrail, the results verify that a cost in the order of 15.5 to 27.5 cents/vehicle - km would be an appropriate estimate for total road costs attributable to a 5 axle articulated vehicle. At this cost level road user charges under recover by 85%, if Commonwealth fuel excise is not recognised as a user charge and by 72% if it is recognised.

The marginal or separable component of this cost is approximately 7c/vehicle km for a 5 axle articulated truck.

Even on this basis there is an under recovery of 54% or 15% depending on whether or not Commonwealth fuel excise duty is treated as a road user charge.

The report states that with these levels of under recovery the State fuel levy would need to rise by 44c/litre to cover total costs and by 9c/litre to cover marginal costs if the shortfall was corrected by adjustments of the State fuel levy alone.

Even if the Commonwealth fuel excise duty is treated as a road user charge an increase of the State fuel levy in the

order of 35c/litre to cover total costs and 3c/litre to cover marginal costs would be required.

The study concludes that on the grounds of the user pays principle, a case nevertheless exists for implementing very large increases in road user charges whether by increasing the present fuel levy or licence fees or introducing a new form of recovery charge.

As a second best solution the Westrail report concludes that consideration be given to:

- increased user charges to at least the marginal cost recovery level;
- Exemption of Westrail (and other competitors with road transport) from payment of Commonwealth fuel excise duty; and
- supply of infrastructure capital (trackworks) to Westrail on an interest free basis, as applies to capital for main roads.



## Photographic competition

Railways of Australia, which is an association of the five government-owned Railway Systems, has offered first class rail travel anywhere in Australia as the prize in an annual photographic competition.

The competition is open to all full time students of photography, and to those who have just completed a course.

Entries, which close on January 31 of each year, should consist of a colour print of A4 size in a vertical format; the subject matter need not obviously be connected with Railways, but should be suitable for use on the front cover of the Railways of Australia magazine "Network".

Further information is available from the Railways of Australia Committee, 6th Floor, 325 Collins Street, Melbourne, (Tel: (03) 61 2545)



showing —

# SRA creates the light at the end of the tunnel

The New South Wales Government has just approved a massive \$282 million rail construction programme for the next three years involving many new railway lines, locomotive servicing facilities, resignalling and an accelerated bridge replacement project.

In announcing details, the Premier of NSW, Hon. Neville Wran, QC, MP, said that the programme would directly create over 1,300 new jobs within nine months, some 300 of which would commence before Christmas.

In the longer term, a further 500 new jobs would be generated bringing the overall programme's total to 1,800 direct jobs, with a further 2,000 jobs created indirectly.

The programme includes the following major projects:

- Construction of a new rail line from Maldon to Port Kembla.
- Construction of the Ulan-Gulgong rail link.
- Construction of a new line between East Hills and Campbelltown, and duplication of the East Hills Line between Riverwood and East Hills.
- Speeding-up of the quadruplication of the Main Western Line between Granville and Westmead.
- Construction of a new locomotive servicing depot at Werris Creek.
- Re-signalling of the Sydenham area.
- Further escalation of the existing rail bridge replacement programme.

Mr Wran said that over \$45 million would be spent on these projects this financial year.

"The New South Wales Government intends using and improving its great transport asset — the rail network", Mr Wran said.

*(continued on page 12)*







*The photograph of the Cowan Tunnel on this page was submitted by 15 year old Paul Mazlin of Longueville NSW. Paul is a keen railways photographer and we thank him for the opportunity to show this example of his work.*



# . . . and generates employment

(continued from page 10)

"After all, it is this Government which has done more to update the transport system than any other in the State's history", he said.

## **Maldon-Port Kembla Rail Link.**

Construction of the new 45 kilometre line between Maldon and Port Kembla will involve building two major bridges, and a 3.5 kilometre tunnel which will be the longest tunnel on the NSW rail network.

This project will also include electrification of the new line, and between Maldon and Glenlee on the Main Southern Line where electrification currently ends.

The existing line from Dombarton to Port Kembla will be duplicated with all-welded track.

Longer term benefits of the new rail link will be:

- Diversion of some road-hauled export coal to rail.
- Diversion of coal traffic from the Illawarra Line, thus relieving the environmental effects of coal freight through the southern suburbs and relieve pressure on passenger train schedules.

- Provision of substantial rail capacity from the mid-1980s to facilitate substantial future increases in coal exports through Port Kembla that can be expected when overseas economic conditions improve again.

**Ulan-Gulgong Line.** The Sandy Hollow-Ulan coal line which was opened in October, 1982 will be extended beyond Ulan to Gulgong — a distance of about 25 kilometres. This new line will connect the Sandy Hollow Railway with the existing Wallerawang/Merrygoen branch line, which provides a link to the Main Western Line and an alternative link to the Northern Line.

This will result in much greater flexibility for the S.R.A. in transporting coal, wheat and general traffic, as well as providing more direct and shorter access for freight from Dubbo region to the port of Newcastle.

When finished, wheat trains from the Dubbo area, mineral ores from the Cobar and Elura mines and mixed freight will use the line.

It will also allow more efficient operation of the express freight

services from South Australia/Western Australia to Brisbane.

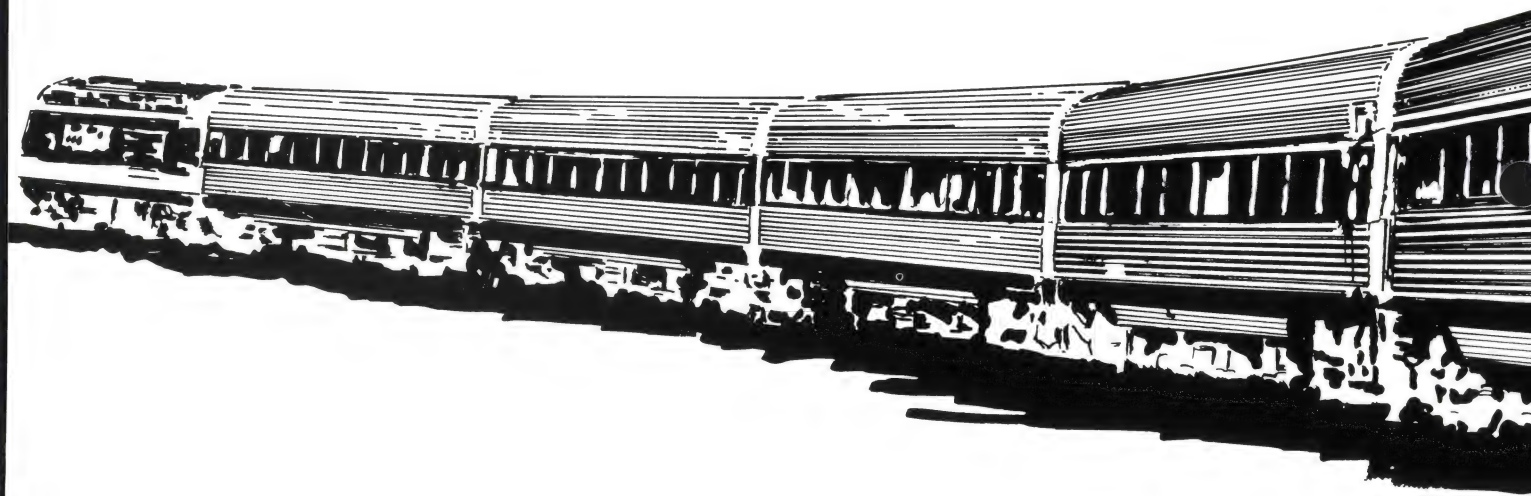
## **Duplication of East Hills Line and New Line to**

**Campbelltown.** Duplication of the line between Riverwood and East Hills will eliminate delays with trains waiting to cross on the present single line, and also pave the way for the extension from East Hills to Campbelltown.

These two vital projects, when completed, will benefit almost one third of Sydney's train users.

Travel times from Campbelltown to Central will be cut by up to 15 minutes. In addition, reliability will improve for services from the south-west and western suburbs such as Liverpool and Penrith as a result of less congestion in the rail network passing through Lidcombe.

The new line will run from East Hills, across the Georges River by a new bridge and then on land which is largely owned by the Australian Government and used by the Army.





# Boost for New South Wales

## Improved Signalling for

### Sydenham Area. "Space Age"

Centralised Traffic Control (CTC) which now regulates train movements in the busy Strathfield/City and Strathfield/Lidcombe/Concord rail corridors will be extended to the busy Sydenham area.

When completed, it will control all train operations in the area Erskineville to Waterfall; Cronulla, East Hills and Bankstown, with resultant economies and greater efficiency in train services.

**More Bridges.** The budget for the bridge replacement programme has been more than doubled to \$10 million in 1983/84.

Since 1976, the S.R.A. has replaced 53 major railway bridges, over 1,100 minor bridges, while over 1,000 kilometres of track has been rehabilitated.

The increased funds just approved will result in the replacement of 19 additional bridges spread right throughout the State.

Other major work in the three-year programme includes a new locomotive servicing complex at Werris Creek and a further speeding-up of work on the quadruplication of the Main Western Line between Westmead and Granville. The 22½ kilometre section between St. Marys and Westmead has been quadrupled in recent years with greatly improved train running. The final 3½ kilometre section between Westmead and Granville is now under construction at a total cost of \$45 million.

The increased budget just approved will allow all civil engineering works to be finalised by June, 1984, with the exception of a "dive" scheduled for completion in 1986.

This project will bring major benefits to rail users in Sydney's outer western region and the Blue Mountains.

The State Government's \$2,400 million ten-year upgrading/modernisation programme for the rail network, which is now in its second half, is clearly indicative of the NSW Government's determination to provide the State's passenger and freight customers with a highly efficient transportation system.





# NCRE symposium explores wi

---

By a Special Correspondent

---

The Melbourne Town House in Carlton was the venue for a most successful railway engineering symposium organised by the Institution of Engineers, National Committee on Railway Engineering (NCRE).

The symposium programme drew papers from a wide range of the engineering fraternity.

Railway systems were well represented with papers being presented by officers from Queensland Railways, New South Wales State Rail Authority, Victoria's new State Transport Authority, Australian National, Mt. Newman Mining and Hamersley Iron.

Private consultants, manufacturers, academics and the CSIRO were also represented. Several papers by international visitors contributed significantly to the symposium.

The Victorian Minister of Transport, the Hon. Steve Crabb addressed delegates at the opening of the symposium.

Railways in Victoria, the Minister said, had in the period leading to the 1980s suffered from loss of staff expertise due to the lack of development activity coupled with little growth. The new period of development and reorganisation which was underway would do much to revitalise the railway's service and standards. Importantly however when this phase was complete there would be a commitment to maintaining high standards within professional ranks, so that the organisation was in the position to accept new products when the requirement arose.

The opening technical address of the symposium was given by Dr E. Gelbstein of Transmark, UK who concentrated on development underway in British Rail, including the use of low-cost radio communication signalling systems on branch lines in which the "token" is an electronic message, new track maintenance techniques including stone-blowing as a replacement for tamping ballast, and low-cost approaches to the provision

of passenger rollingstock predicated on the use of Leyland National bus-body structural components. Considerable work was being done under a BR programme to develop, for secondary services, "The Half-Cost Railway".

The second session dealt with high speed trains in Australia and the XPT service in New South Wales. The standard of Australian railway tracks was seen as a limitation to the best use of high speed passenger trains even though, as demonstrated by the XPT experience, these trains had the capacity to improve patronage and revenues.

Session 3 introduced the research professions and academia to the symposium. Papers were presented by Mr R. Groenhout, BHP Melbourne Research Laboratories, Dr P. Grundy, Monash University and Mr B. Woods of CSIRO Lucas Heights, all of whom have authored papers for overseas conferences or publication. The session topic "Rail Bridges and Rail Fatigue" emphasised the need for in depth study and experimentation when dealing with fatigue. Dr Grundy's paper cast some doubts on the suitability of US practices (as laid down by the AREA) for the design of Australian railway bridges, but both his paper and that of the CSIRO (which dealt with acoustic emission monitoring of railway bridges) demonstrated that by the application of the appropriate technology, the safety and reliability of railway bridges could be ensured, even under changing loading conditions. For instance one bridge structure, severely distorted by an errant road truck, had been proved completely sound in New South Wales.

The application of computer technology in providing improved railway services (Session 4), through improved scheduling, passenger information, train routing and train performance simulators highlighted the growing importance of electronic technology in railway system

operations. The paper by A. Carey, STA, highlighted the importance of correct system specification to ensure the objectives of the introduction of new technology were obtained, rather than the alternative where the system's abilities controlled the application.

The opening session of the second day of the symposium dealt with a topic close to the heart of all involved in railway engineering — justification of new investment in railway systems. Two papers from ARRDO, which covered an assessment of national investment requirements, suggested a need for over \$2 billion expenditure in the next five years.

Mr D. Archer (SRA), who reviewed the benefits of the SRA Track Upgrading programme illustrated the practical side of such expenditures by showing that a specific line on which train delays, derailments and increasing maintenance requirements were beginning seriously to hamper service quality, could be turned around to a high standard operation. This is a most important paper as it showed the high cost and unacceptability of the often advocated "do nothing" option. The potential benefits from upgrading in Queensland showed a similar justification for investment in programmes of this kind.

The remaining sessions of the day examined a variety of topics in the civil and mechanical areas. A number of papers were of note. Queensland Railways have recently purchased from Plasser, Australia a rail planing machine, similar to one successfully used by British Rail, to reprofile the rail head and provide with vertical rails, the equivalent of a 1:20 rail cant. Despite some problems in profiling rails with severely deformed heads, with swarf collection, and with the set up and changeover of tooling, the new machine now appears to be working well. A device which was developed jointly by Hamersley Iron and CSIRO for the automatic profile measurement of



# range of engineering topics

rails has after some hiccoughs including light reflection from the ballast, reached the status of a commercial proposition and should soon be available in the Australian market. This is another noteworthy piece of first-principles Australian rail research.

These papers, together with that of B. Stephens (QR) who reviewed operating experience with 25 kV electric multiple units in Brisbane, illustrated that the engineering task is not complete when a new unit is designed or delivered.

The frank way in which operational problems were brought out and the ways in which successful solutions were outlined indicated very much the importance of a practical approach to engineering. This approach was evident throughout the symposium in many other papers (e.g. XPT — One Year On by B. G. Sismey, R. Pugh and M. R. Tate; Real Time Computers used in the Melbourne Underground Rail Loop, by A. Carey; The Structural Analysis and Testing of the State Rail Authority of NSW 100 Tonne Coal Wagons Designed for Service in Unit Coal Trains, by P. F. Milton).

In Tandem with this approach of sound application of basic principles in linked engineering disciplines, it must be recognised that the introduction of new technology will routinely and of itself create new engineering "problems" or "challenges".

Fortunately today's railways engineers do see change as a "challenge", and not a "problem" to be avoided by the do-nothing approach, which attitude was occasionally evident in the 1960s and 1970s. Given the political commitment to the "challenge" approach as evidenced by the Minister of Transport's speech, a brighter future for railways in the 1980s can be predicted.

The extent of this commitment, particularly in terms of new investment, formed the theme for the address

given by the Chairman of the National Committee on Railway Engineering, Ian Macfarlane, to the conference dinner. He pointed out that the "highwaymen" — new terminology which may aptly describe the road lobbyists — had no difficulty in generating substantial funds. This was evidenced by the Australian Bi-Centennial Roads Programme which has survived changes of government and variations in political philosophy. Meanwhile the rail systems, who must compete with this subsidisation of the road transport mode, have to a large extent been fobbed off with very low levels of investment in line-haul general freight, despite the obvious attraction economically of rail for such hauls. The key point, according to Ian, was the need for railway people to develop a more aggressive and well-argued case for rail investment, so that rail to at least compete on somewhat less unequal terms in terms of infrastructure. The final day of the conference was composed of five sessions. In view of Ian Macfarlane's comments the review of the INTRANS plan was heartening evidence that progress in co-ordinating national freight haulage would improve the service offered by rail on interstate routes.

J. Adams (AN) discussed gauge standardisation and presented some interesting figures for unit cost. Given that relatively low cost solutions, which are well proven, are available, it must be hoped that the final link in a national standard gauge network — Melbourne to Adelaide — is funded and soon completed.

The remaining sessions of the day concentrated mainly on vehicle design. Papers which stimulated comments included one by Dr J. Gerofi which examined the role and design of "light rail" vehicles in the suburban transport task. Given the flexibility of operating light rail vehicles on reserved track or roads, the ease of construction of interchange facilities with other modes

of traffic and the wide experience available with this type of transport overseas, Dr Gerofi felt light rail had a significant role in future urban rail development particularly where passenger densities are low, or existing city or suburban development limits rail planners.

At the other end of the scale, Mr D. Souche (GEC Traction, UK) previous past Chairman of the I. Mech. E. Railway Division spoke of design for locomotives particularly in heavy haul applications e.g. South Africa. Given the service provided by these locomotives and experience with heavy haulage in Australia where some locomotives have hauled almost 4,000 million tonne — kilometres of traffic the real competitiveness of the rail mode, compared with road is much in evidence.

Improvements in wheel maintenance practices (paper by D. Davis) make obtaining a 1,000,000 kilometre wheel life a realistic possibility (compare this with a road tyre) while the introduction of rigid frame bogies and preliminary work of international significance performed by BHP's Melbourne Research Laboratories on the importance of bogie tolerances (paper by P. Stone) in conjunction with Mt Newman Mining and Hamersley Iron, indicate the through rail is regarded by some as a 'sunset' technology, the reality is that new advances can considerably improve the economics of rail transport.

On a final note, the organising committee has asked that thanks be given to the authors, speakers and session Chairmen whose efforts contributed significantly to a very successful conference. Copies of the symposium papers are available from the Institution of Engineers, 11 National Circuit, Barton, ACT at a cost of about \$20.





**P**ersonally, I have no doubt that the Victorian Railways are managed with marked ability and commendable zeal . . .

The words are those of late Prime Minister Sir R. G. Menzies, put to paper when he was Minister of Railways in Victoria.

The year was 1933, appropriately 50 years to the month before birth of the present day State Transport Authority.

Reason for Mr. Menzies' glittering praise was issue of an illustrated brochure 'A Record of Achievement', which reviewed rail progress in Victoria during the period 1923-33. Text of Mr Menzies' foreword in the brochure is printed here:

*'I have learned many things from an extensive professional and political experience of the Victorian Railways and an intimate association with them during the last 12 months as Minister. Among them I have discovered that the Victorian public is invariably critical of its railways, that it is sometimes unfair in its criticism, but that such unfairness proceeds not malice but want of information. Personally, I have no doubt that the Victorian Railways are managed with marked ability and commendable zeal, and that they are staffed by a body of men possessing a high average level of competency. It is a fundamental error to assume that any railway system so conducted is standing still. The Victorian Railways have moved with the times; to what a dramatic extent they have done so will be apparent to all those who read this publication.*

*I hope that all critics will read it, and that having read it, each of them will ask himself — "Have I done as much during the last ten years to improve my capacity for rendering service to the community in which I live?"' —*

*(signed) Robert G. Menzies,  
Minister of Railways*

'A Record of Achievement' showed that passenger, goods and mixed trains were being run to greatly accelerated schedules, electrification had revolutionised suburban services and that plant, equipment and methods had been modernised.

It further stated that business methods had displaced 'red tape' and that the operating costs of the railways compared; more than favourably with those of other railways.

Mr Menzies' tribute was displayed on page one of 'The V.R. (Victorian Railways) News Letter' of July, 1933. Another absorbing, and equally appropriate (to birth of the S.T.A.), item appeared in the News Letter of August, 1933.

It stated that in a unanimous report, the Transport Regulation Board had recommended creation of a Ministry of Transport to 'embrace railways, tramways, roads, road transport, air transport and possibly harbours and ports'.

It also advocated appointment of a Transport Authority which it was proposed would be empowered to licence all commercially operated road motor vehicles, both goods and passengers, including five-seater cars which had permission to operate anywhere in the State except upon the five main highways.

Needless to say, Victoria got a Ministry of Transport — it came in September, 1934, with the then Minister of Railways, Mr Wilfrid Selwyn Kent Hughes being named to head the new department.

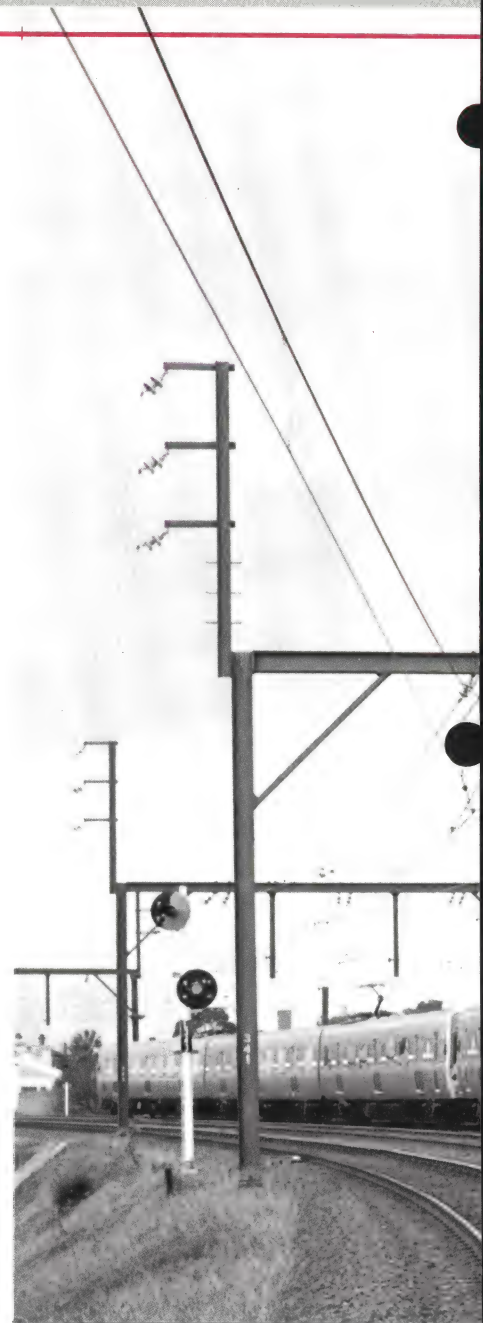
And, today's State Transport Authority, Metropolitan Transit Authority, Road Construction Authority and Road Traffic Authority — the four separate bodies in Mr Crabb's Ministry — could rightly be said to constitute the Transport Authority proposed by the Transport Regulation Board in 1933.

Meanwhile, Melbourne metropolitan rail commuters shared a 'world first' in November.

They travelled on a multi-modal, flat fare transport system which takes in the whole of the metropolitan area — a wide-ranging system enjoyed by no other major city in the world.

Key to the innovative system is 'Neighbourhood' ticketing.

Neighbourhood fares permit unlimited travel on either, train, tram or bus for up



*A Comeng electric train displaying the MT*

to two hours by purchase of the one fare.

The one fare, one neighbourhood system had its trial last October in the suburbs of Moorabbin/Caulfield and Sandringham and proved a resounding success.

Patronage in the 'neighbourhood' rose by 13% in less than 12 months.

Repeat of the system in neighbouring Geelong, 48 miles south west of Melbourne, proved an even greater success. Patronage there rose by a staggering 31% in only nine months.

'Neighbourhood' has split Melbourne into ten zones, with costs varying from a low of 60 cents in some areas to \$1

# . . . 'managed with marked





*...and orange colours swings through Melbourne suburbs on its way to the city.*

in the 'Inner Neighbourhood', largest of the zones.

TravelCard, system of all day and weekly travel, has been retained and, like neighbourhood, is multi-modal. Daily TravelCard costs vary from \$2.40 (inner city) to \$4 (anywhere in the system), while weekly TravelCard costs range from \$12 to \$16.

Announcing details of the restructured fares the Minister of Transport Mr Steve Crabb, said the total conversion to 'Neighbourhood' had followed Neighbourhood successes in Moorabbin/Caulfield and Sandringham and Geelong.

Mr Crabb said both Neighbourhood

and TravelCard provided the potential for 'door to door transport'.

"With either system a commuter can catch a bus close to home, travel to a railway station, and then change to a tram at the other end of the journey.

"And all of this for the price of one fare", Mr Crabb said.

Mr Crabb explained that TravelCard had been retained because it was an 'established, acceptable, multi-modal ticketing system ideally suited to needs of commuters with travel patterns based on corridor journeys'.

Neighbourhoods, apart from the inner region, are centred on Moorabbin, Box Hill, Greensborough, Broadmeadows,

St Albans and Werribee. Frankston, Dandenong and Ringwood make up the third group, those furthest from the centre of Melbourne.

Each Neighbourhood has its own flat fare, with a dearer fare charged for travel to an adjoining Neighbourhood. Mr Crabb said that the State Budget, handed down on September 21, provided for a 20% increase in revenue from passenger fares.

Additional benefits from the new system include unlimited travel after 7pm for holders of neighbourhood tickets, and off-peak discounts and free weekend travel for holders of TravelCard.



# ility and commendable zeal'

— P.M. Sir R. G. Menzies



It is a great pleasure to be with you in Port Augusta today on this my first visit as the Minister for Transport. I must say I regard it as an even greater privilege to be asked to open the Laurie Wallis Apprentice Training Centre.

A railway apprentice training centre brings together two elements of our society that are often maligned — Australia's railway systems and our young school leavers.

Let me say categorically that in both cases much of the criticism is ill-informed and unfounded. Both are vital to Australia's future.

An example of this illconsidered and unfair criticism can be found in the recent report of the Senate Select Committee on Statutory Authority Financing.

That report made much of the supposedly poor performance of these organisations because their "net real return on total funds employed" have declined over recent years.

While I am not saying there are no grounds for criticism of government business enterprises, I think we should look much deeper than this. Over the period of the previous Government not only were these enterprises starved of equity funds but where reasonable profits were made these were not allowed to be reinvested but rather had to be paid to the Government as dividends in order to support their obsession with reducing the deficit. I wonder how well many private companies would have performed if their Directors and shareholders had adopted similar policies.

It seems to me that continuation of these types of policies would place many of what were and should be viable public enterprises in a similar situation to railways.

After all, a major reason why railways are in their current state is past Government policies which starved these enterprises of investment funds so vital for modernisation.

What funds were provided were overwhelmingly given as loans which only exacerbated the difficult financial situation railways were already facing. The previous Government's policies seemed to almost be deliberately directed to sending other Government business enterprises down this path. Since coming to Government we have taken major action by providing equity capital to the other public authority transport enterprises to ensure this vicious circle is broken.

I must admit it is more difficult in respect to railways but only because of two factors. The first is that railways

were originally so much the dominant land transport mode and secondly, that the decline was allowed to continue for so long.

Railways have a vital role to play in the development of Australia and must be properly equipped with both the physical and manpower resources necessary to perform that role efficiently.

Despite the current difficult economic conditions, Governments have been pressing ahead with major railway projects. And they are showing their confidence in railways' future by committing further funds for new projects which will expand the overall tasks performed by railways.

Taking our own system, Australian National, you would recall that it was the previous Labor Government which initiated the Tarcoola-Alice Springs Railway — completed in 1980 and now carrying double the traffic of the old line to Alice Springs.

The new standard gauge link between Adelaide and Crystal Brook has been operating very successfully, despite overall economic conditions. Since last December, over 1.1 million tonnes of freight have been carried on the line. Work is proceeding on a new interstate passenger terminal with services expected to commence next March or April.

The Government is providing a revenue supplement of \$85 million for Australian National for 1983/84. I have asked AN's Commission to identify those services where it believes Governmental support for non-viable community services should be provided.

We are also moving to introduce new legislation which will enable AN to be more competitive and commercially oriented. By such actions, we are moving to redress the problems that have been created by the indifference of previous Governments.

On the capital side, as well as completion of the Adelaide-Crystal Brook project, this year funds have been allocated to continue rehabilitation of the Tasmanian rail

system, continue work on AN's new headquarters building and enable the purchase of 10 new locomotives. I am pleased to foreshadow that further support for AN will be provided under the Commonwealth element of the Community Employment Program. Something of a transport revolution is occurring in Victoria. John Cain and Steve Crabb have engineered the most profound organisational changes in the history of transport in that State to improve the efficiency of their railway system. Already we are seeing simplified fare structures and services geared to the changing needs of the public, as well as new or refurbished rolling stock.

Extensive new rail links have been built in Queensland to carry coal for export. At present 35 million tonnes per annum are carried over these lines. Coal lines in New South Wales have also expanded rapidly in the past few years, the most recent being Sandy Hollow to Ulan. Approximately 22 million tonnes of coal are now carried annually in NSW.

Work is well advanced on the electrification of the lines from Sydney to Newcastle and from Sydney to Wollongong/Port Kembla. Both will be completed by 1986.

There have also been announcements of new rail links in New South Wales including the Maldon-Dombarton and East Hills/Glenfield links and major electrification projects in Queensland. It is not only in mineral traffic that railways play a vital role. A paper delivered earlier this year by AN's General Manager, Don Williams, to the Chartered Institute of Transport, demonstrates this point. That paper identified that almost 80% of the traffic task performed by land transport to and from Western Australia was on rail. That is for every tonne carried by roads, about four tonnes were carried through Port Augusta by rail. Clearly therefore, the hard nosed business world appreciates the major contribution that rail makes.

It is very pleasing to see that State Governments share our concern to see

# Minist

The Federal Minister of Transport,  
Mr. Peter Morris, today opened the  
Laurie Wallis Apprentice Training  
Centre at Port Augusta in October.  
During his opening address,  
Mr. Morris made some interesting  
observations regarding the  
Federal Government's commitment  
to the railway.



# opens Port Augusta apprentice centre

... and offers tribute to Laurie Wallis

the nation's rail system upgraded. Efficient transport of our exports is vital to maintaining our competitive edge in overseas markets. When it comes to bulk traffic, minerals and grains, railways are obviously the efficient way to go.

The Government is committed to completing the national standard gauge system. The last link between Adelaide and Melbourne would be of enormous benefit in time saving and flow through of services for east-west carriage of passengers and freight, and many of the benefits would flow to AN and South Australia.

Given the severe budgetary conditions inherited by the Government, we had to critically examine all major transport proposals and be realistic in what we can do.

I know that virtually every South Australian would like to see the Alice Springs-Darwin Railway built. So, no doubt, would they also like a new car and an overseas holiday if they weren't asked to pay for it.

Be under no illusion because if the Alice Springs-Darwin railway is built, then all Australians will pay for it at the expense of other projects or through higher taxes.

That may be reasonable — when the Northern Territory Government rejected the Commonwealth offer to jointly fund the railway's construction,

we decided that an independent economic inquiry to clearly establish the facts was necessary.

Both the South Australian and Northern Territory Governments were involved in deciding the terms of reference for the inquiry and have agreed to participate. No doubt, many of you will wish to make your input to the inquiry's work. I would urge those of you who intend to make a submission to do so. It is only through full participation in the inquiry that the facts will be clearly established. As you know, the Government does not look at each mode of transport in isolation but is concerned with the effectiveness of transport as a whole and with the way that different modes can best operate together.

We are therefore tackling the most vexed issue in land transport — long distance road and rail general freight operations.

Each mode claims the other does not meet the full cost of their operations. I expect the National Road Freight Inquiry to bring the facts out into the light.

In this way, it will set the stage for the development of a more efficient land transport system. Clearly, from what I have said earlier, I see the railways having a major role in that system.

We are only too aware that young people have been particularly hard hit by today's tough economic circumstances. But we need keen and able young people with the right skills. The Government is strongly committed to ensure that the apprenticeship system meets these needs.

About 35% of job opportunities for school leavers are provided by apprenticeships but in recent years there has been a big decline in the numbers of new apprentices.

It is critical for Australia that economic recovery not be held back in a few years because of a shortage of skilled workers which could have been available with just a little more effort in the right direction at this time.

The Government has moved to get out-of-work apprentices re-employed by increasing by 50% the subsidy to employers who take on such apprentices. Also, all employers being assisted under the Special Assistance Programme are now able to receive wage rebates for approved apprentice training under the CRAFT scheme.

Consistent with that support, I should note that this training centre was constructed under the Commonwealth Rebate for Apprentice Full Time Training (CRAFT). It replaces the old training centre, a converted power house built in 1931.

The new facility has workshops for the electrical, welding, mechanical and fitting trades, and can train an intake of up to 50 apprentices each year.

Despite the far from ideal conditions imposed by the previous establishment, Australian National apprentices have excelled in a number of fields. I understand that several apprentices were awarded major prizes at the Port Augusta Technical and Further Education College's 1982 Apprentice Presentation Night.

Railways are a particularly important part of Port Augusta's economy. Laurie Wallis has played a prominent role in highlighting the close integration between Port Augusta and Australia's railway system. Therefore, it is fitting that this apprenticeship training centre should be named in his honour.

For 14 years, as the Member for Grey, Laurie worked hard for his constituents, gaining special satisfaction from helping people with their problems, regardless of their political allegiances. The 1977 redistribution nearly doubled the size of the electorate of Grey which then became one of the largest in the country.

Laurie served on a number of Parliamentary Committees, including the House of Representatives Committee on Aboriginal Affairs and the Publications Committee and several caucus committees, notably that of transport where we enjoyed close co-operation.

I have no doubt that in his successor, Lloyd O'Neill, the people of Grey have a local member who will continue to give the same support and service as did Laurie.

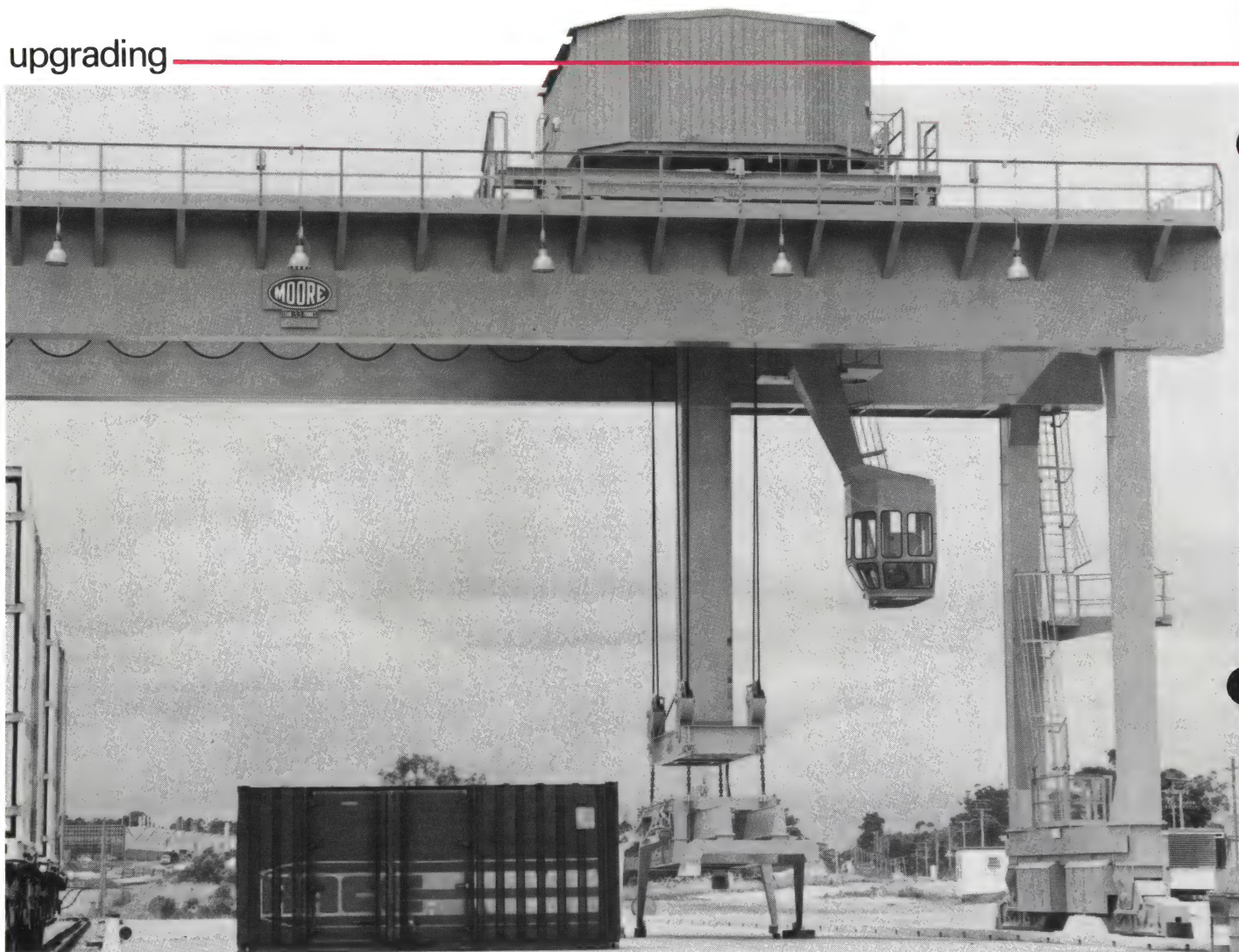
Laurie Wallis' association with Port Augusta goes back much further than his 14 years as the local member. He came here thirty years ago to start work as a boilermaker with the then Commonwealth Railways. He soon became involved in union affairs, serving as the secretary of the local branch of the Boilermakers' and Blacksmiths' Society for nineteen years. Laurie was also the secretary of the Combined Unions Council in Port Augusta.

The construction of a new apprentice training centre for Australian National in Port Augusta is indeed an appropriate tribute to a man who throughout his working life has championed the cause of railways.

It is therefore now my very great pleasure to declare the Laurie Wallis Apprentice Training Centre open and wish all apprentices, current and future, well with their studies.







The new 33 tonne capacity gantry crane recently installed at Acacia Ridge.

## REDEVELOPMENT AT ACACIA RIDGE

Major re-development has taken place at Acacia Ridge to facilitate the handling of goods traffic to and from Interstate railway systems.

In just three years some \$15 million have been spent on upgrading this very important terminal.

The terminal has been designed for unit train operations and it now provides road access to Beaudesert road and dual rail gauge.

It was officially opened on 17th October, 1983. Extensions to the complex were brought about by the inability of Clapham and South Brisbane goods yards to handle the ever increasing volume of goods being railed.

There was also the problem of freight trains being delayed between Grafton and South Brisbane because there was insufficient siding accommodation available to handle the trains.

This problem has now been overcome with the laying of an additional five kilometres of holding tracks.

Major features of the programme were:

- New container handling terminal with road access to Beaudesert road

and dual gauge rail access. Road access has been designed to significantly reduce road/rail conflict.

- New gantry crane of 33 tonne capacity for both gauge transfer and road/rail container movements.
- New administration building, including a signal cabin and amenities facilities, together with minor office and amenities buildings in the new yard.
- Major earthworks and drainage, including the re-alignment and concrete lining of Stable Swamp Creek South, for the two new marshalling yards.
- New trackwork in conjunction with the relocation of the existing marshalling yards and container handling area. New track includes standard, QR and dual gauge and provides for a significant increase in siding capacity, both in terms of siding numbers and length.
- New road overbridge over the main Interstate line and other tracks at Boundary Road, eliminating this road bottleneck. This work included a

significant increase in culvert capacity and re-alignment of Stable Swamp Creek in conjunction with flood mitigation works by the Brisbane City Council.

- Integrated electronic signalling of a major portion of the new yard and existing sidings, allowing for interfacing with the suburban network signalling at Salisbury.
- Floodlighting of the new yard.

The bulk of the works were carried out by private contractors with only some specialist work such as tracklaying, signalling and electrical installation being undertaken by departmental day labour.

Site works commenced during December 1980 and overall completion was achieved during October 1983.

Major staging of the works was necessary to maintain existing facilities during the construction phase.

Funding for the project was provided by a special loan provided by the Commonwealth Government for main line upgrading works and from normal State Government loan funds.





# Brisbane electrification on line ahead of time

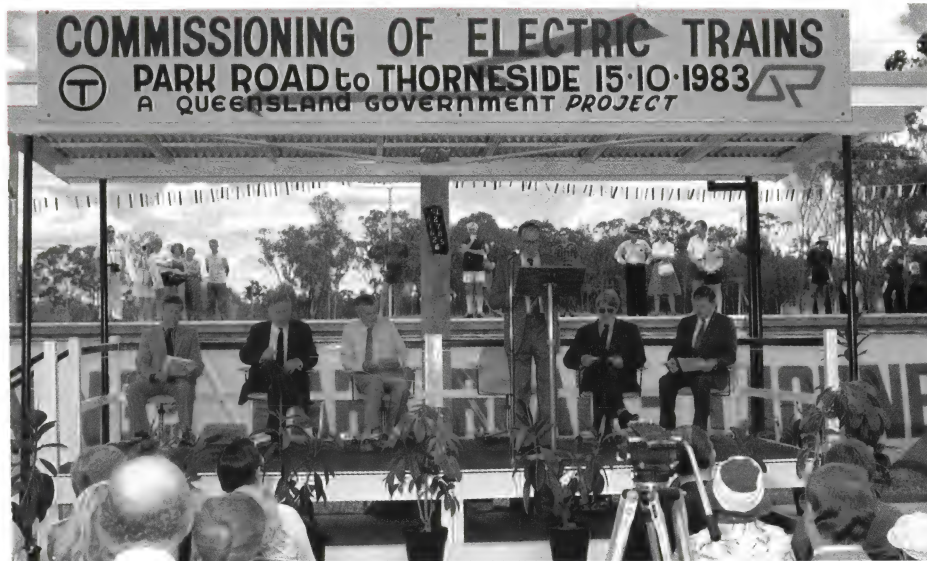
Extension of electric train services between Park Road and Thorneside represents the completion of the Brisbane suburban network seven months ahead of schedule. Design of the suburban electric system commenced nine years ago and actual construction started in 1975. Four years later electric trains were introduced between Darra Ferny Grove, covering a route length of 36 kilometres.

Now, within another four years, we see the completion of the originally planned system plus the extension of the electric railway from Lota to Thorneside.

The whole system totals 157 route kilometres and 295 track kilometres. On October 15, 1983, the official commissioning ceremony took place at Thorneside Station, and many of the guests travelled from Roma Street Station on a special steam hauled train. On arrival at Thorneside the train passengers were greeted by the 1st Military District Band.

The Premier, the Hon. J. Bjelke-Petersen, attended the ceremony and he was greeted by other members of the official party; the Hon. Neil Turner, Minister for Transport, the Hon. John Goleby, Minister for Water Resources and Maritime Services, Mr Doug Mendoza, Commissioner for Railways, Mr Merv Genrich, Chairman of the Redlands Shire Council and Mr Peter Welding, Chairman of the Metropolitan Transit Authority.

Mr Mendoza delivered the initial address in which he praised the



*Mr Doug Mendoza, Queensland Commissioner for Railways addresses gathering at Thorneside.*

achievements of railway workers.

"The fact that regular suburban services have been effectively maintained while construction has been going on represents, in itself, a major achievement," he said.

"And the wisdom of providing a high quality electric rail system has been proven by the success of the electrics to date and the continuing growth in patronage that has been experienced since their inception.

"As an example, recent passenger counts on the Kingston, Shorncliffe and Petrie lines, all of which have been electrified in the last 13 months, show patronage increases ranging from 20 to 30%.

"And possibly the most satisfying achievement of all," he said, "is that the project has been completed seven months ahead of schedule and, by the time the last bill has been paid, we expect to finish within about one half of 1% of the original cost of \$260 million".

"I would be failing in my duty if I did not also voice my appreciation of the Government for their commitment to the project and for the support and enthusiasm of successive Ministers for Transport," he said.

Next to address the guests was Mr Merv Genrich.

He assured the gathering that an electric railway to Wellington Point and Cleveland was "not a pipe dream". Chairman of the MTA, Mr Peter Welding, explained the advantages of the Park and Ride concept at stations.

"The MTA has already provided 5,800 off-street car parking spaces at suburban stations," he said, "and it is expected that 10,000 spaces will be provided by the end of the decade." Mr Turner referred to the Central Queensland electrification as well as the suburban project.

"Railways went to work and lifted its sights beyond the Gold Coast, Cleveland and Caboolture, to Cairns and the coalfields of Central Queensland," he said. "It initiated detailed design for electrification from the Blackwater mines to Gladstone, and from Gladstone to Brisbane.

"It completed a feasible 10-year implementation programme to include Goonyella to Hay Point, at Mackay, and Newlands to Abbot Point, Bowen.

"Also on the list went Gladstone to Rockhampton, Blackwater to Emerald and Norwich to Hay Point.

"A giant jigsaw will slowly be pieced together until Queensland is hailed throughout the world as an initiator, a leader, a doer," he said.

After November 13 of this year, electric trains on the Thorneside line will be seen operating according to the "clock face" system of timetabling.

Half-hourly off-peak services will be provided with, obviously, a greater frequency during peak hours.

Arrival of the first electric train from Thorneside to Roma Street successfully completed what could be called the most ambitious project in Queensland Railway's history — the provision of electric suburban passenger services.



*Steam train 'conveying' guests to official ceremony arrives at Thorneside.*





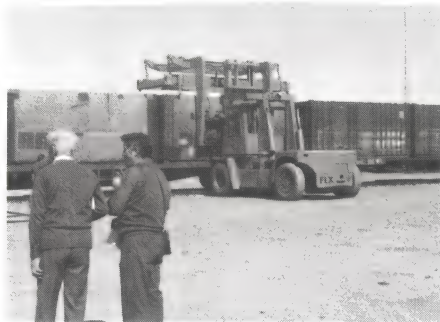
*Record breaking 39 wagon unit wheat trains carried grain from Temora to Newcastle. The picture above and the similar huge consist shown at the bottom of the opposite page was a sight not seen before in 128 years of railways in NSW.*

The State Rail Authority's recently acquired \$4.2 million freight complex — to be known as the "Trackfast Centre, Chullora" — handled its first train loaded with containers on August 23.

This was the inauguration of the new SUPERFREIGHTER service — the overnight delivery of full train loads of containers from Sydney to Melbourne. Superfreighters, carrying up to 1,000 tonnes of containers, run a non-stop overnight service between the two capitals, covering the distance in about 13 hours. On arrival at Melbourne in the early morning radio-controlled motor vehicles convey containers with speed and safety to their ultimate destinations.

A week later the "Trackfast Centre" extended; its operations to cover 'Full Container Load' (FCL) traffic to Brisbane and intrastate destinations. Full train loads of containers to the Riverina for fruit loading, to Wee Waa for return loading with cotton, and other locations to handle a wide range of products.

Introduction of the FCL service forms



*Forklifts are currently in use supplementing gantry loading and unloading of containers.*

Stage 1 of the progressive concentration of all the SRA Sydney-based LCL and parcels traffic into the one modern centralised "Trackfast Centre" at Chullora.

In Stage 2, due for completion by April 1984, two additional gantry cranes will be installed to speed up even further FCL operations.

Present plans provide for the transfer of the remaining activities at the old Darling Harbour Goods Yards to Chullora by August 1984.

The final stage, which should be completed in late 1984, will embrace the amalgamation and integration at



## TRACKFAST

the "Trackfast Centre" of LCL traffic and parcels operations currently centred on Sydney Station parcels office.

Independent Freight Handling experts acknowledge that when the 19-hectare "Trackfast Centre" complex is fully operational, it will provide not only the most modern small freight and parcels receipt/despatch centre in Australia, but also a highly efficient container freight operation.

Purchase of the complex from Seatainer Terminals Ltd will enable the SRA to close Darling Harbour Goods Yards which have outlived their usefulness.

While the archaic conditions at Darling Harbour were a primary reason to find more modern rail freight headquarters, its unsuitable location was equally a factor.

Darling Harbour is not a site that any freight operator with an eye on providing ease of access would choose. It is hemmed in by a constant stream of city traffic and is a long way from the industrial areas in the western suburbs.

By contrast, the "Trackfast Centre" at Chullora is the geographical hub of Sydney, close to the industrial areas and midway between two major arterial roads — Hume Highway and Parramatta Road.







*Left: The SRA's new \$4.2 million Trackfast Centre covering 19 hectares at Chullora — geographical hub of Sydney's industrial areas. Above: Two additional gantry cranes, similar to this unit will be erected in the Trackfast Centre, Chullora as part of Stage 2. They should be in full use by April 1984.*

increasing volume of containers, freight and parcels with maximum efficiency. Rail container customers are already appreciating the improved service following introduction of Stage 1. When fully operational for containers, LCL and parcels traffic by the end of next year, the "Trackfast Centre, Chullora" will assuredly be Australia's most modern rail freight complex.

## CENTRE CHULLORA

Customers will no longer have to fight through city traffic to pick up and deliver, thereby saving them much valuable time.

Although Darling Harbour Goods Yards and Sydney Station Parcels Office have been in use for over a century, facilities at both locations have remained virtually unaltered in that time.

With the new "Trackfast Centre" at Chullora the SRA is in a position to offer customers a much better service and at the same time provide staff with a more pleasant working environment. The new complex consists of large reinforced concrete areas, a main shed, two railway sidings, access roads for road vehicles, as well as office and

amenities buildings. The huge main shed of 15,000 square metres has facilities for packing and unpacking containers. There is storage space for over 1,000 containers.

Although well equipped at the time of acquisition, the SRA intends to further upgrade the "Trackfast Centre" to meet existing traffic demands, as well as to increase volume capacity as a result of its aggressive marketing activities capturing new business.

More railway tracks will be laid to accommodate electric parcels vans which will carry the small freight and parcels. A sophisticated mechanised "sortation" system will also be installed to ensure the terminal can handle the

## Meanwhile . . .

Another railway record was broken recently when the State Rail Authority ran the biggest unit grain train ever in the 128 years of Railways in New South Wales.

On 14th September a special 39-wagon unit train loaded 2,300 tonnes of wheat at the Temora Sub Terminal for transit to the Bullock Island Seaboard Terminal in Newcastle.

The giant train, with a total mass of 3,200 tonnes, was hauled by two "81" class diesel-electric locomotives on the 650km journey.

Unit coal trains operated by the S.R.A. are even bigger!

Seven 42-wagon coal trains, each with an all-up mass of 4,200 tonnes, run regularly on an around-the-clock movement mostly every day of the week.





# Jane's short on facts about Australia

**JANE'S URBAN TRANSPORT SYSTEMS** 1983 edited by Chris Bushell and Peter Stoneham. 346 pp, 210 x 320mm, artpaper, several hundred half-tone illustrations. Published by Jane's, 238 City Road, London EC1 V2PU. Pounds 47.50 (about \$110 locally).

*Jane's* is the definitive international reference work in several fields and *Urban Transport Systems* is no exception. Partly a specialist reference work and partly a trade directory, it is global in scope and comprehensive in coverage. It attempts to apply these standards both to the world's urban transport systems — heavy and light rail, trams, trolleybuses, buses and hybrids such as guided busways — and to urban transport suppliers. In the case of Australia, however, it fails. And the fault, dear Brutus, lies not in editorial offices in City Road, London EC1, but in executive suites right here in Australia. The exceptions are so few, in fact that they deserve to be named and given full credit for carrying Australia's urban transport message to the world.

After a summary review article in which Adelaide's O-Bahn busway gets favourable mention, the first 27 pages of *Urban Transport Systems*

cover suppliers of rail-guided vehicles and propulsion equipment. All the world's leading manufacturers are represented, but from Australia only Goninon and Walkers-ASEA have entries which match the standards of the major entries.

The next section is rail vehicle components and fixed electrification hardware, fields in which many Australian firms are active. Only Stone-McColl has an entry in its own right; Westinghouse Brake (Australia) is listed as a subsidiary. There are many Australian companies who will wonder why the rest of the world has not heard of them.

But the urban railway industry certainly has plenty of bad company on the urban roads. Not one Australian busbuilder or component supplier is listed — even though the Kiwis have scored a double mention, as builders and as suppliers of buses to Singapore. Westinghouse again excepted, our signalling and fare collection industries are unlisted; Plasser's excepted, our track maintenance plant and track component suppliers have likewise managed to avoid getting themselves listed in this definitive international reference work. So much for our drives for export.

The entries for the urban transit systems are split into rail (heavy and light) and bus; with one very noteworthy exception, Australian coverage of the systems is rather better, ranging from excellent to very good in the cases of Adelaide, Brisbane, Canberra, Hobart, Melbourne and Perth.

May we suggest that all offices, public and private sector alike, start working now to ensure that our country collectively receives better mention in the next issue of this *Jane's* and the correspondingly definitive *Railways* Volume. So if you want to find out about urban transit in Australia, *Jane's* is a mixed source and Australians have nobody but themselves to blame. But if you need addresses, statistical information, broad information about other cities' transit (including how much they lose) and what equipment the more enterprising overseas firms are making for whom, *Jane's* remains as always a most useful reference work.

No large organisational library can afford not to have this work on its reference shelves. But at the price, few private readers will be able to. Recommended, for a limited range of reader needs.



## Equipment reliability 'fundamental' - SNCF chief

"Passengers must be assured of safety and of the utmost comfort. Managers have to be assured of the greatest possible reliability combined with the optimum simplicity in maintenance" — these are the opening comments in a recent article in French Rail News, news bulletin of the SNCF.

In pursuit of these aims, Mr G. Coget, head of the SNCF design department explains the design philosophies he expects from suppliers to his industry. At all times and in all places the main worry of railway crews has been, and remains, getting trains to leave on time, to have them run regularly and to arrive on time.

However, this major concern is constantly evolving. For a very long time it was the concern of train crews, and in this connection any advances in the operating reliability of traction motors, and in the capacity and availability of the power train, have remained of the utmost interest for the railways.

But today the changes called for by commercial and safety considerations

make for a more complex situation. Is a customer satisfied if, although on time, he has suffered from poor heating, air conditioning, or lighting? If some malfunctioning brake gear has caused wheel flats which have spoiled his trip? If some badly functioning door hindered him when stepping down from the train?

In suburban trains improved safety has forced designers to rethink the whole technical aspect of door operation. Systems are today far safer but necessarily also more complex. A single door not operating properly may cause severe problems at peak hours.

There is no lack of examples showing the increasing importance of the reliability of railway equipment on the quality of rail service.

They cover just about every single piece of rolling stock equipment, from locomotive windscreen wipers to the horns, and from pantographs to the rear lights of trainsets.

Having regard to the importance of reliability in its equipment, the SNCF has clearly stated its policy: All new

rolling stock must incorporate only equipment that has been thoroughly tested:

- in service on previous rolling stock
- on test facilities and after trials of prototypes in commercial operation with regard to new products.

Nor is this policy in any way opposed to technical advance. Quite the contrary: clear and precise specifications facilitate the task of contractors and equipment makers who are adept at channelling their studies and research.

The reliability influenced by this policy does not inhibit competition, and the competition cannot be just on a commercial basis.

The set of rules is clear and inescapable, the winner must have been tested.

This situation sometimes leads to SNCF taking an active part in the development of new products and in seeking solutions relating not only to the improvement of tasks and performances, but in regard to the

(continued on page 56)



# Economical, Proven and Safe. Fist-BTR Fasteners will keep your city...on the move.

Growing cities need fast, efficient transportation to survive. When it comes to the movement of people and goods, today's modern railways provide the answer.

The Fist-BTR Elastic Rail Fastening System with concrete sleepers, is an outstanding combination on which to build a railway.

Consisting of 3 simple, robust and easily identifiable components for both insulated and uninsulated track, the Fist-BTR Rail Fastener is easy to fit, self-tensioning, maintenance free – and is low in cost.

With over 50 million fastening assemblies in use throughout the world and more than 25 years of in-track experience, the Fist-BTR Rail Fastener has proven its performance and safety beyond doubt – even at speeds up to 245 kilometres per hour.

The Fist-BTR Elastic Rail Fastener, technically proven and economically sound, the concrete rail fastener for railways of today, and the future.



 **BTR Rail Fasteners**  
(Australia) Pty. Ltd.

P.O. Box 72, Bentley, Western Australia. 6102.  
Telephone: (09) 451 3266. Telex: BTRAIL AA94070.

65 Chulia Street, #41 – 06 OCBC Centre, Singapore, 0104.  
Telephone: 223 3025. Telex: RS 20113.





One of Swan Hill's most popular tourist attractions is the unique Carriages Restaurant, situated in the main street close to the central shopping area of this prosperous town on the Murray River, 330km from Melbourne.

Two Tait suburban passenger cars — numbers 218D and 220D — were purchased from Victorian Railways and taken by rail to Swan Hill and placed on railway tracks specially prepared on the restaurant site.

One of the cars was built between 1911-1913, the other in 1926-27. Building work commenced in 1977 and the restaurant was under construction for two years.

The interior design of the building is based on a railway station theme and this imagery is projected extremely well in every aspect.

The interiors of the Tait cars bear little resemblance to the originals. Now fitted with plush deep red velvet cushioning and red velvet drapes, the dining area in each car seats up to forty two patrons at tables for two or four — a far cry from the original utility seating standards.

However, many authentic fittings have been retained in the cars, such as baggage racks, hand rails and even straps for standing passengers.

Upstairs in "Carriages Restaurant" is a cocktail bar featuring attractive stained glass panels; the spacious reception area is particularly popular for larger gatherings, weddings and conference functions. Up to 260 people can be seated in the complex altogether.

## *Dining in style . . . on the rails at Swan Hill*

The chef of the restaurant, Mr Ray Earle, is a deservedly popular local figure. A varied 'a la carte' menu is available to diners, two of the dishes in great demand being all forms of Murray Cod when in season, and the chef's specialty "Pork Woodburn". This dish

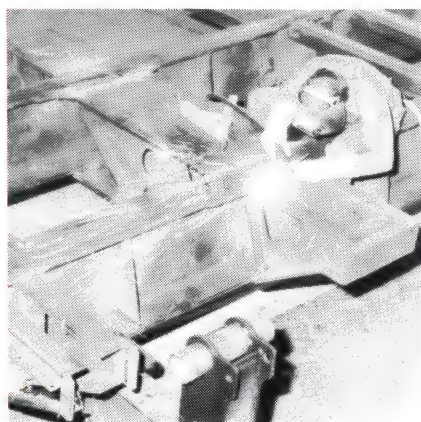
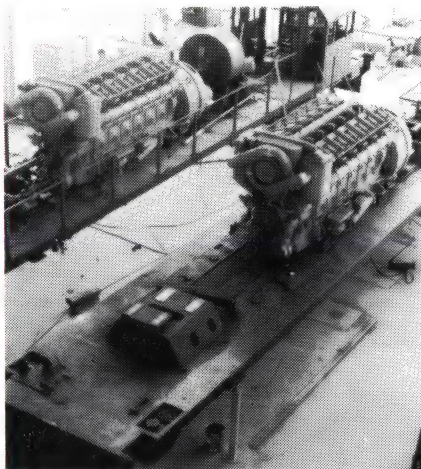
comprises pork fillets with bananas and mushrooms — and a piquant sauce. Proprietors of Carriages Restaurant, Max and Carol Runnalls, are also the owners of the Pioneer Motor Inn next door, part of the national Homestead Motor Inns network.





# North Queensland Facility

Our Townsville plant is now fully operational and is well advanced with the manufacture of thirteen 2390 HP mainline diesel-electric locomotives destined for use on the Newlands to Abbott Point Coal line, north of Bowen.



## Accelerating towards the future

As partners in progress - General Electric and Goninan have made available to Queensland Railways the finest diesel-electric technology in the world. The U22C Locomotive has a fine track record with an excellent fuel economy.

We have modified the existing General Electric design to suit Australian standards, importing only the power componentry.

Our Townsville plant has been designed expressly to build locomotives and rolling stock and has a lifting capacity of 80 tonnes.

The manning level at the facility is currently over 100.

**GONINAN**  
**NORTH QUEENSLAND**

**GONINAN NORTH QUEENSLAND PTY. LIMITED**  
Incorporated in Queensland

891 Ingham Road Bohle Estate Townsville Queensland  
P.O. Box 634 Aitkenvale Qld 4814 Australia  
Telephone (077) 74 5744 Telex AA 47919

HEAD OFFICE: Broadmeadow Road Broadmeadow Newcastle NSW Telephone (049) 69 9299 Telex AA 28061



A MEMBER OF THE HOWARD SMITH GROUP



upgrading

# \$35 million for new STA locos

It would not be wrong to say that the State Transport Authority of Victoria has 'gone loco'.

A \$35 million contract has been awarded to Clyde Engineering Pty Ltd for construction of 20 new locomotives while 39 other locos are being refurbished and up-powered.

In addition, significant orders have been placed for locomotive spare parts to help keep STA's 280-strong diesel fleet 'on the road'.

The new locomotives on order will be built at a new factory to be established by Clyde Engineering at Somerton, north of Melbourne.

The Premier, Mr John Cain, announcing acceptance of the successful tender, said it was a condition of the contract that the locomotives be built in Victoria.

The locomotives will be built in lots of ten — half of them being of 3300hp and the others 2500hp. First of these will be ready for delivery by the second half of 1984.

The lesser-powered locos will have head-end power supply for passenger train usage — air conditioning and lighting — and the more powerful engines will be put to mainline freight operation.

The new locomotives are still to be given a rolling stock classification.

The locos being refurbished are 26 B Class and 13 T Class. First of the B Class, being refurbished at Clyde Engineering's South Australia plant at Rosewater, was due last October.

First of the T Class, undergoing work at Clyde's Somerton plant, was expected in December.

The B Class will be reclassified A and be equipped with 2450hp turbo-charged engines. Original B Class diesels are of 1600hp.

The T Class diesels will become P Class and the first to re-enter service will be used on the Stony

Point and Leongatha lines, in Gippsland.

They will haul former suburban cars at present being converted for InterUrban services.

Meanwhile, work on deferred locomotive maintenance has been doubled with most of the work being done at STA's Newport Workshops.

Financial restraints curtailed this work in recent years and order of the much-needed spare parts should see a speedy catch-up of locomotive maintenance.



*Bold outline of STA's V/Line logo is shown prominently on the nose of this B Class locomotive at Melbourne's Spencer Street Railway Station. A total of 26 B Class locos are being refurbished and given a power boost at Clyde Engineering works in South Australia.*







# Britain's railbus chases worldwide exports

The first production Railbus — Britain's new development in low-cost, lightweight, suburban railway vehicles — has officially joined the British Rail fleet. Now British Rail Engineering is getting ready to chase its worldwide export potential.

The Railbus consists of a Leyland bus body matched to a purpose-built rail-fabricated steel underframe made by British Rail Engineering. So far BR has ordered 20 of the two-car sets, costing in total \$12 million. It is hoped that successful operation of this first series of units will lead to further substantial orders from BR to increase the fleet. The first two-car Railbus set will enter service later this year after crew-training runs and will be joined by other units during the next 12 months. All will operate in the West Yorkshire area of northern England on services radiating from Leeds and Bradford, where it is hoped they will reduce journey times by 10 per cent.

Also now under construction by Leyland Bus and BR Engineering are three Railbus demonstration vehicles. These are intended for despatch to the United States, South East Asia and Europe next year to allow overseas railway authorities interested in the Railbus to see its capability while running on their own lines.

In the United States interest has already been expressed in the Railbus for possible use as a modern version of the street car, and on holiday routes.

To date, interest in the Railbus concept has come from 15 countries as well as Western Australia, and United States. BR Engineering managing director Philip Norman said: "Transport authorities are showing great interest. The BR Class 141 is just one of an extensive range of Railbus models available to the world market, and represents significant endorsement of this concept of transportation. We believe it will inspire confidence in the minds of potential customers and turn interest into firm orders."

Railbus was first launched in May 1981 when a prototype single-car unit was unveiled. The logical development was a two-car version for use on higher density routes.

Railbus is seen as a new cost-saving way of moving passengers in and out of towns, particularly those on low-density lines and little-used rural services.

The key to the success of the design is said to have been the careful blending of the most advanced features of road and rail passenger transport technologies. The vehicle's body has

already been proven over many millions of safe passenger miles in the form of more than 7000 Leyland National buses in operation round the world.

The purpose-built underframe has many advanced features and gives excellent ride performance. The suspension is developed from the successful two-axle, high-speed design derived by BR from the Advanced Passenger Train development programme.

The suspension employs Flexicoil springs with both vertical and lateral damping — a combination which gives smooth, stable running up to 120 km/hr. The system has, in fact, been tested at 160 km/hr in complete safety.

The Class 141 is powered by the TL11 engine from Leyland. The transmission — featuring a proven free-wheel facility to further improve fuel consumption — is supplied by the England midlands-based company SCG. Class 141 can operate as either a two-car set or in multiples of up to four sets — in which form it could carry nearly 1000 passengers.

Railbus is adaptable to suit broad, standard or narrow gauge, and with either left or right hand control.







## Gordon would make great ambassador

Station master Gordon Warnest would make a great ambassador.

Thanks to Gordon, the quaint Hamley Bridge Station in SA's mid north is now a popular tourist spot.

The reason is the magnificent garden surrounding the building which Gordon has tended for the past 18 years.

It includes over a dozen varieties of plants many of them attractive Australian natives, set amongst towering trees.

The spectacle has attracted letters from people all over Australia who have spotted the garden from train windows. Hamley Bridge is on the Adelaide-Peterborough line used by passengers connecting with the Indian Pacific.

Gordon says many passengers return just to see the garden and seek advice on their own plants.

And passengers are not the only ones looking to Gordon for gardening tips. Many locals also follow his example.

While the garden requires continuous work, Gordon does not mind the effort.

Gardening has been his life-long interest and he has transformed every station at which he has worked.

He has spent 44 years with AN, and lived in Paskeville, Tailem Bend and the West Coast.

Besides improving his environment, Gordon also believes in working for the community.

In Hamley Bridge, he has been secretary of the local St. John Ambulance Brigade for 17 years and, bowling club secretary for the past 11 years. He is also involved with the Lions Club.

He plans to retire in Adelaide next year so he "can pursue new interests".

And his successor better be a keen gardener because there will be one regular visitor to Hamley bridge taking particular interest in the matter.

## Family fun day on the Overland

Thousands of enthusiasts flocked to Adelaide railway station recently to enjoy a free family fun day on the Overland.

The event was organised by Australian National and the public were given access to all parts of the train, including the opportunity to meet its locomotive and coach staff. On the platforms were exhibitions by AN and the Victorian Government Tourist Bureau and entertainment was provided by the AN institute band with guest appearances by Humphrey B. Bear and Fat Cat.

The amazing success of the day was largely due to the dedicated staff who worked behind the scenes. A team from the parcels depot spent over two days packing thousands of sample bags which proved a great hit with the public. And the car cleaning staff, who had only 2½ hours to clean the train after the arrival of the Overland that morning, managed to have everything looking spic and span on time for the opening.

"Their work was quite remarkable when you consider they have to make up 250 beds, floors to clean, walls to wash, rooms to scrub and stocks to replenish," said AN passenger services manager, Mr Reg Fry.

Passenger and station staff also worked frantically to cope with the thousands of spectators who crammed the 1200ft platform and train. See pictures on pages 32 and 33.









National children's TV star Humphrey B. Bear made the visiting youngsters ecstatic at AN's recent Family Fun Day. Inset: Many thousands of visitors took the opportunity to acquaint themselves with The Overland's power plant, an AN loco superbly presented in its new green and yellow colours.





# America's great steam powered trains in The Rockies

\*By Morgan Lawrence

Looking for a vacation adventure that the whole family can enjoy? Consider riding the narrow gauge railroads in the Rocky Mountains of Colorado and New Mexico.

Easily reached by air and automobile, the Cumbres and Toltec Scenic Railroad and the Durango and Silverton Narrow Gauge Railroad traverse rugged high country that isn't accessible by any other means of transportation.

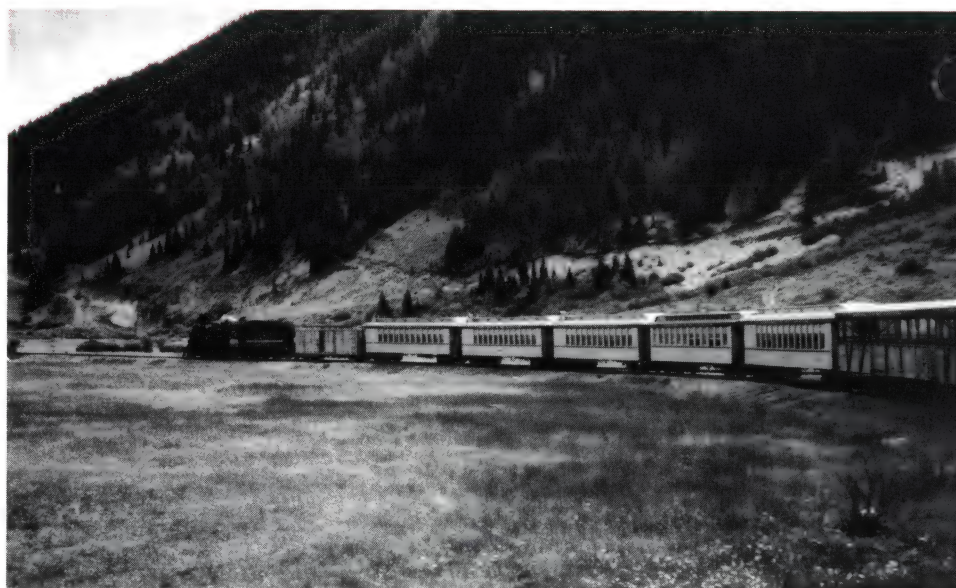
Fortunately, their starting points — both in Colorado — are easily reached by plane and rental car. The Cumbres and Toltec starts in Antonito and rambles west and south to Chama, New Mexico. The Durango and Silverton, as its name indicates, chuffs between two early-day Colorado mining towns.

An hour's flight from Denver by Frontier Airlines took us to Alamosa, hub of the San Luis Valley. At 7,500 ft., it's the largest alpine valley in the world. From there, we drove a rented car 29 miles southwest to Antonito, the eastern terminus for the Cumbres and Toltec.

The six and one-half hour train trip is a marvelous introduction to the desert vistas of the valley and Mt. Blanca, at 14,345 feet, the highest peak of the Sangre de Cristo range. Rich in history, the area was first inhabited by the Ute Indians, and crossed by the Spanish searching for cities of gold.

Eventually the railroads came, bringing prospectors and settlers. A population of only a few hundred, Antonito offers sufficient overnight lodgings.

*\*Mr Morgan Lawrence is an American writer and photographer widely known in the USA for his articles on travel promotion. He is a member of the Society of American Travel Writers and his work appears in publications worldwide.*



*Above: 'The Silverton' (Section 2) gets ready to depart for Durango, Colorado, travelling over the Durango and Silverton narrow gauge railroad. Above, right: 'Colorado Ltd' climbs towards Cumbres pass after departing Antonito, Colorado, headed for Osier.*

After a good night's sleep and hearty breakfast at the Narrow Gauge Railroad Inn, we high-tailed it over to the Cumbres and Toltec rail depot.

Promptly at 10 am the COLORADO LIMITED, with 250 passengers ensconced in 10 coaches rebuilt from old box cars, headed for the San Juan Mountains.

With a classic 1925 coal-burning K-36 locomotive, and veteran engineer Bill Paluska at the helm, our train immediately commenced its climb across the San Luis Valley to the 10,015 ft. Cumbres Pass summit.

Begun in 1880, the 64-mile line is one of the great engineering feats of American railroad construction. It was an extension of the now defunct Denver and Rio Grande Railroad's famous narrow gauge rail network.

Until 1950 it was still possible to journey in the deluxe "EL SAN JUAN" passenger train all the way from Alamosa to Durango and Silverton.

Originally, it was the great search for gold, silver, iron, and coal that brought prospectors to this rich mountain region. Today you can still see ghost towns and abandoned mines, majestic mountains and emerald green valleys dotted with ranches and new homesteads. From rolling mesas of the valley to the snow-peaked mountain ranges, this terrain is rugged and forbidding.

During water stops at Lava, Big Horn, Sublette and Toltec, you can detrain



and enrich your photo library. In these higher altitudes the sun is warm, but the air is rarified and chilly with rain showers common. It's wise to bring a heavy sweater.

In its steady climb up a 1.42 percent grade, the train follows a serpentine course that crosses over Colorado and New Mexico borders eight times.

Passing through two tunnels over 300 feet long we reach spectacular Toltec Gorge, the most dramatic scene of the entire route.

Massive verticle walls of granite line the right-of-way. Beyond is the Rio de Los Pinos Valley, an area of sweeping meadows and mountainsides of Ponderosa pine, spruce, silver birch and shimmering cottonwoods. In the gorge the tracks are at an elevation of 9,637 ft., over 2,000 ft. higher than at Antonito.

We arrive at Osier at precisely 12:58 pm. It's lunchtime and the





company operators have set up an excellent out-door barbecue next to the depot. One does tend to work up an appetite and the hearty luncheon is well worth the \$5.75 fee.

During the hour and fifteen minute Osier stop the eastbound "NEW MEXICO EXPRESS" arrives from Chama, New Mexico. Passengers returning to Chama or Antonito change over to their respective trains.

From Osier south, the "NEW MEXICO EXPRESS" returns to Chama, southern terminus, with stops at Los Pinos, Cumbres (Spanish for summit), Coxo and Lobato. The Cumbres railpass at 10,015 feet, with its snowshed wye where locomotives and snowplows turn around, is the highest in North America.

Leaving Cumbres, the express begins its run downhill on a 4% grade for the 14 miles to the end of the line, arriving at Chama Station at 4:20 pm.

The excursions operate Friday through Tuesday from June to October.

Reservations are required. The states of Colorado and New Mexico have made the Cumbres and Toltec Railroad an historic preservation project for future generations to enjoy.

Travelling west of Alamosa across Southern Colorado, all-weather Highway 160 parallels the Navajo Trail. Highway 84 north out of Chama, New Mexico, joins 160 at Pagosa Hot Springs, 53 miles east of Durango. Among the region's great natural and historic resources are San Juan National Forest, Mesa Verde National Park and Navajo Lake State Parks. More than any other community, Durango is the commercial and historic centre of the San Juan Basin. The gold rush and silver ore brought the railroads. The year 1880 saw the chartering of the city, the arrival of the first passenger trains, and the building of its famous Victorian Strater Hotel. Today the basin is a year-around tourist mecca.

With all Durango's many fine attractions, it is the Durango and Silverton Narrow Gauge Railroad that holds the greatest fascination for visitors. By popular demand, two steam powered scheduled trains operate between Durango and Silverton every morning from May through October. The first departs at 8:30 am, arriving Silverton at noon; the second section departs at 9:30 am, arriving in Silverton at 1 pm. Each "section" allows

passengers two hours for lunch, shopping, and sightseeing. They leave for Durango at 2:05 pm and 3:05 pm. Travel time each way is approximately three and one-half hours.

Riding the trains offers spectators a first-hand view of the 2-million-acre San Juan National Forest, a priceless preserve of natural wildlife. Naturalists claim there are 70 species of animals (bear, mountain lion, elk, deer etc.); 300 flowering plants, including the state's lovely blue columbine. Remnants of mining towns are everywhere.

One drawback is the cramped quarters and small windows of the well maintained, refurbished 19th Century coaches. During peak periods, average daily ridership is 900 people per train — and growing. Overcrowding is a problem, even with mandatory reservations. You are encouraged to take photos from the open-air observation car.

During the 45-mile journey, Los Animas Canyon (13,000 ft.) with its beautiful waterfalls and cascading rapids of the Los Animas River is the unsurpassed site. In recent years, dude ranches and private summer homes have sprung up in the valley approaching the canyon. To accommodate this new populace the railroad company offers pick-up and drop-off service, by reservation only. In the "good old days" before 1950, passenger trains ran daily to Silverton. As a tourist attraction for the next 30 years, they operated only in the summer months.

In November 1981, trains began taking passengers to the half-way point at Cascade Canyon Wye for a lunch stop and return to Durango. Financier Charles Bradshaw, the new owner of the Durango and Silverton Railroad, has added three K-27 and three K-28 steam locomotives, and 26 passenger cars to boost capacities and frequency. There is a promise of year-around service.

In honour of the railroad's centennial in 1981, the new management rebuilt the Durango Depot to its original splendour. The city joined the centennial celebration by creating a handsome park adjacent to the station with shopping centre and quality restaurants.

Not to be outdone, the Strater Hotel was restored to its original Victorian elegance. We found the accommodations and food service excellent at moderate prices. In addition, there are first-rate motor inns in the immediate area at reasonable rates. Reservations are strongly recommended.





# ***"I'd install Automatic Train Control tomorrow if it were possible"***

As a railway professional, you know all the arguments for Automatic Train Control.

You know exactly how ATC could benefit your railway.

You know that one day it will be installed on your railway.

But at the moment there's one very big factor holding you back from setting a date for the initial introduction of ATC...and that is the cost.

In which case we suggest you look beyond the Continuous ATC systems that may be causing you to hesitate and take a close, in-depth look at Ericsson's JZG 700 Intermittent ATC system.

The result could be the introduction of Automatic Train Control on your railway years sooner than you thought.

## **CONTINUOUS VS INTERMITTENT ATC: WHICH IS BETTER?**

Neither. It depends on individual circumstances.

Continuous ATC is by its very nature expensive to install and maintain, but in certain circumstances and over comparatively short stretches of track, a Continuous system can be both desirable and cost-effective. This particularly applies to bottleneck-type situations where reduced headway is imperative, but where alternative solutions would be prohibitively expensive.

However, these are very special circumstances.

For most rail systems, such situations are either rare or non-existent.

Which means that for perhaps 99.9% of all potential ATC applications, Ericsson's JZG 700 Intermittent ATC System offers performance and efficiency fully comparable with the most advanced Continuous systems, but at a far, far lower cost.

## **HOW JZG 700 INTERMITTENT SYSTEM WORKS.**

Very briefly, JZG 700 consists of a trackside encoder to sense the signal information; beacons in the track to transmit the information to the train; an antenna and transmission unit on the locomotive (for scanning the track and receiving information from the beacons) an evaluation unit to provide overall supervision; a panel for displaying information to the driver.





# *atic Train Control half the price."*



Stockholm Central Station.

The antenna on the locomotive scans the track continuously with a 27 MHz signal. When the train passes over the beacons, the antenna's signal activates them. They then transmit to the train via a 4.5 MHz carrier the information they contain on the **prevalent speed** and **distance** to and **status** of the next signal ahead. A microcomputer in the evaluation unit analyzes this information in conjunction with previously stored data on train length, braking capacity, etc., and checks continuously that the train is kept within the given speed limit. The driver's panel displays the current maximum speed and any upcoming speed reduction ahead and warns the driver both visually and audibly if a change occurs. Should the driver fail to respond appropriately within a given number of seconds, the evaluation unit takes action to slow or stop the train as necessary.

"WE CAN AFFORD TO BUY JZG 700 INTERMITTENT ATC SYSTEM, BUT CAN WE AFFORD TO RUN IT?"

No problem.

JZG 700 is exceptionally easy to install and maintain since there is no continuous conductor running the entire length of the system requiring frequent and costly attention.

For more information write or call:

LM Ericsson Pty Limited  
Industrial Products Division  
Box 41 Broadmeadows Victoria 3047  
Telex: ERICMEL AA30555. Tel: (03) 309 22 44

***Maybe it's time we talked.***

**ERICSSON** 



# No matter which way you go...

Response to ROA's diagrammatic timetables among travel agents around Australia has proved particularly enthusiastic. Since the original issue of the diagrammatic maps, the new 'Alice' service from

Sydney to Alice Springs has been brought into service. All new maps as shown on these two pages now include 'The Alice' service. The two diagrammatic timetables are available at all Railways Interstate

## Take a train.

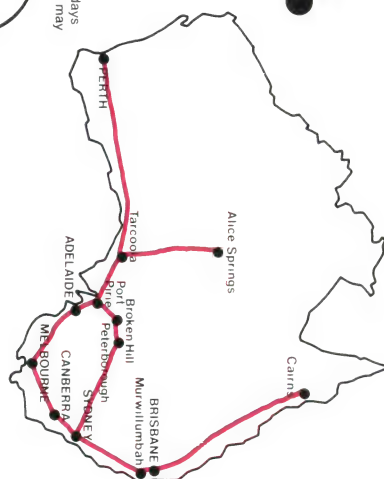
**TIME ZONES**  
Central Standard Time (CST) is half an hour behind Eastern Standard Time (EST). Western Standard Time (WST) is two hours behind Eastern Standard Time (EST). Daylight Savings Time also operates in some States.

WESTERN  
STANDARD  
TIME

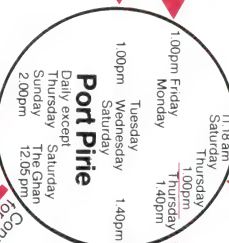
CENTRAL  
STANDARD  
TIME

EASTERN  
STANDARD  
TIME

**\*THE GHAN**  
An additional service departs Tuesdays from May to October. Extra services may also be scheduled in December and January.



Trans Australian  
Indian - Pacific



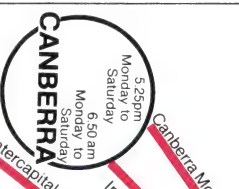
Connection from the Eastbound Indian-Pacific and Trans Australian to the Ghan



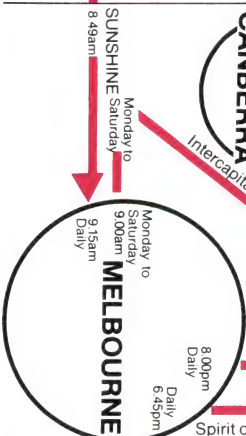
Connection for the Eastbound Indian-Pacific



The Alice  
Indian-Pacific



Canberra Monaro  
Intercity XPT  
InterCapital Daylight



Southern Aurora  
Spirit of Progress



Brisbane Limited  
North Coast Overnight  
Goldcoast MotoRail



Sunlander



Timetables may be subject to alterations.



# There's an ROA connection

Booking Offices — so helpful staff can advise passengers at a glance exactly what the connecting services are, travelling clockwise or anticlockwise around the country.

Every major Intersystem service is listed.

For complete details see your rail accredited travel agency or Railways Interstate Booking Offices in each capital city.

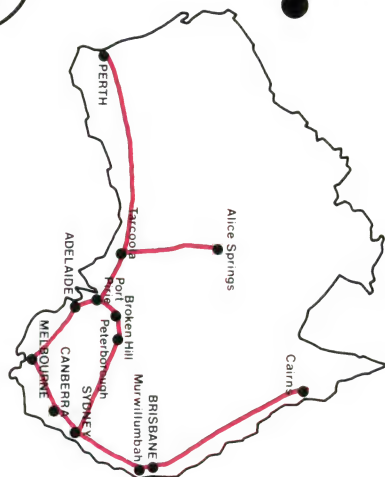
## Take a train.

**TIME ZONES**  
Central Standard Time (CST) is half an hour behind Eastern Standard Time (EST). Western Standard Time (WST) is two hours behind Eastern Standard Time (EST). Daylight Savings Time also operates in some States.

WESTERN  
STANDARD  
TIME

CENTRAL  
STANDARD  
TIME

EASTERN  
STANDARD  
TIME



**PERTH**

Monday  
Friday 6.00am  
Tuesday  
Sunday 7.00am  
Wednesday 6.00am

Trans Australian

Indian - Pacific

**Port Pirie**

Thursday 2.30pm  
Tuesday 4.30pm  
Friday 3.16pm  
Monday 3.45pm

The Ghan  
The Alice

**Alice Springs**

Friday 10.30am 12.25pm  
Wednesday 1.00pm

The Alice

Indian-Pacific

**Peterborough**

Tuesday 1.37pm  
Sunday 1.22pm  
Monday 1.55pm

Connection from the Westbound "Indian-Pacific"

Connection from the Alice

**ADELAIDE**

Thursday 12.50pm  
Daily except Tuesday  
Friday 5.40pm  
Monday 5.40pm

Connection for the Westbound "Indian-Pacific" and Trans Australian

Connection for the Ghan

Connection from the Alice

Connection from the Westbound "Indian-Pacific"

Connection from the Alice

Timetables may be subject to alterations

• INDIAN-PACIFIC SUNDAY SERVICE  
Conditional during June, July and August.  
Economy sleepers also available on this service

The Alice

Indian - Pacific

**SYDNEY**

Saturday, Thursday 10.10am  
Daily 6.00am 9.15am  
Monday 1.40pm  
Saturday 3.15pm  
Monday to Friday 6.50pm Sunday to Friday 7.30pm

Brisbane Limited

North Coast Overnight

Goldcoast MotoRail

**Murwillumbah**

Daily 2.30pm 4.00pm

**BRISBANE**

7.20pm  
Thursday  
Friday  
Saturday  
Sunday  
5.45am  
Tuesday  
Wednesday

Sunlander

Sunlander

**Cairns**

Wednesday  
Thursday  
Friday  
Saturday  
Sunday  
7.00am  
3.00pm

Canberra

Intercity XPT

Intercapital Daylight

Southern Aurora

Spirit of Progress

For passengers travelling from Sydney and Broken Hill in seating accommodation

The Overland

Connection from the Alice

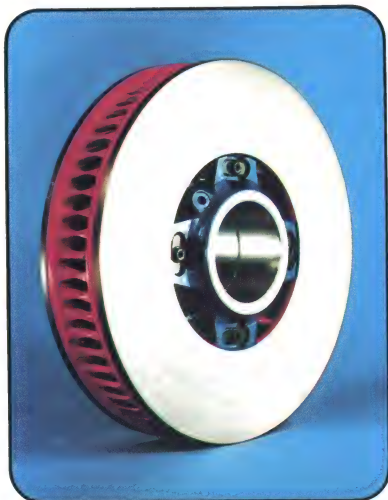
Connection from the Westbound "Indian-Pacific"



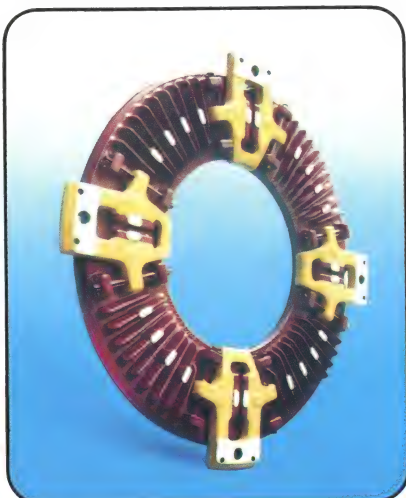
# METCALFE/-BSI-

(Bergische-Stahl Industrie)

## VENTILATED DISC BRAKES



AXLE MOUNTED, TYPE 'WK' DISC



WHEEL CHEEK MOUNTED,  
RIM FIXING TYPE 'RK' DISC



WHEEL CHEEK MOUNTED,  
HUB FIXING TYPE 'RK' DISC

### AXLE MOUNTED TYPE 'WK'

SINGLE OR DOUBLE DISC BRAKES WITH GREY OR SPHEROIDAL GRAPHITE IRON SURFACES, MOUNTED ON STEEL HUBS. MONOBLOC DISCS IN IRON OR STEEL ARE ALSO AVAILABLE.

### WHEEL CHEEK MOUNTED TYPE 'RK'

WHEEL CHEEK MOUNTED DISC BRAKES AVAILABLE WITH EITHER RIM OR HUB FIXINGS. BRAKING SURFACES IN GREY IRON OR SPHEROIDAL GRAPHITE IRON WITH MINIMAL DISC-TO-WHEEL HEAT PATH.

### FEATURES

- Braking energy is dissipated via ventilation thus providing high thermal capacity with negligible heat transfer to the wheel, to meet the most arduous conditions.
- High integrity mountings of simple robust design, ensure safety and reliability.
- Patented super ventilation system provides high thermal capacity to suit the most arduous conditions.
- Low operating temperatures result in good pad and disc life.
- Patented mounting system allows disc freedom to expand both axially and radially, thus relieving thermal stresses in both disc and wheel, to ensure long disc life.
- Unique, U.I.C. approved, 'snap lock' pad holder ensures speedy pad change with safety and security.
- Backed by extensive research and test facilities, including comprehensive dynamometer and computerised simulation.
- Hundreds of thousands of sets in service world-wide backed by over 50 years experience in the design, development and manufacture of disc brakes.

For further information please ask for catalogue E7

**DAVIES & METCALFE (Equipment) Ltd**  
**Sussex Avenue, Thwaite Gate**  
**LEEDS LS10 2LF ENGLAND**  
**Telephone: 0532 716201**  
**Telex: 557140**



# Priceless steam engine restored

Sydney's Power House Museum is involved in a \$250,000 project to restore a steam-powered rotative beam engine considered to be one of the major engineering achievements of the Industrial Revolution.

Built by James Watt and Matthew Boulton in 1783/84, the engine is being revived for its 200th anniversary on July 22, 1985.

The Power House Museum called in contract labour company, Extraman Pty. Ltd., to help dismantle and transport the engine to its Castle Hill storeyard. The engine will be steamed at Castle Hill for 5-6 months after its 200th anniversary then it will be moved to the museum's display centre in Ultimo which opens in 1986.

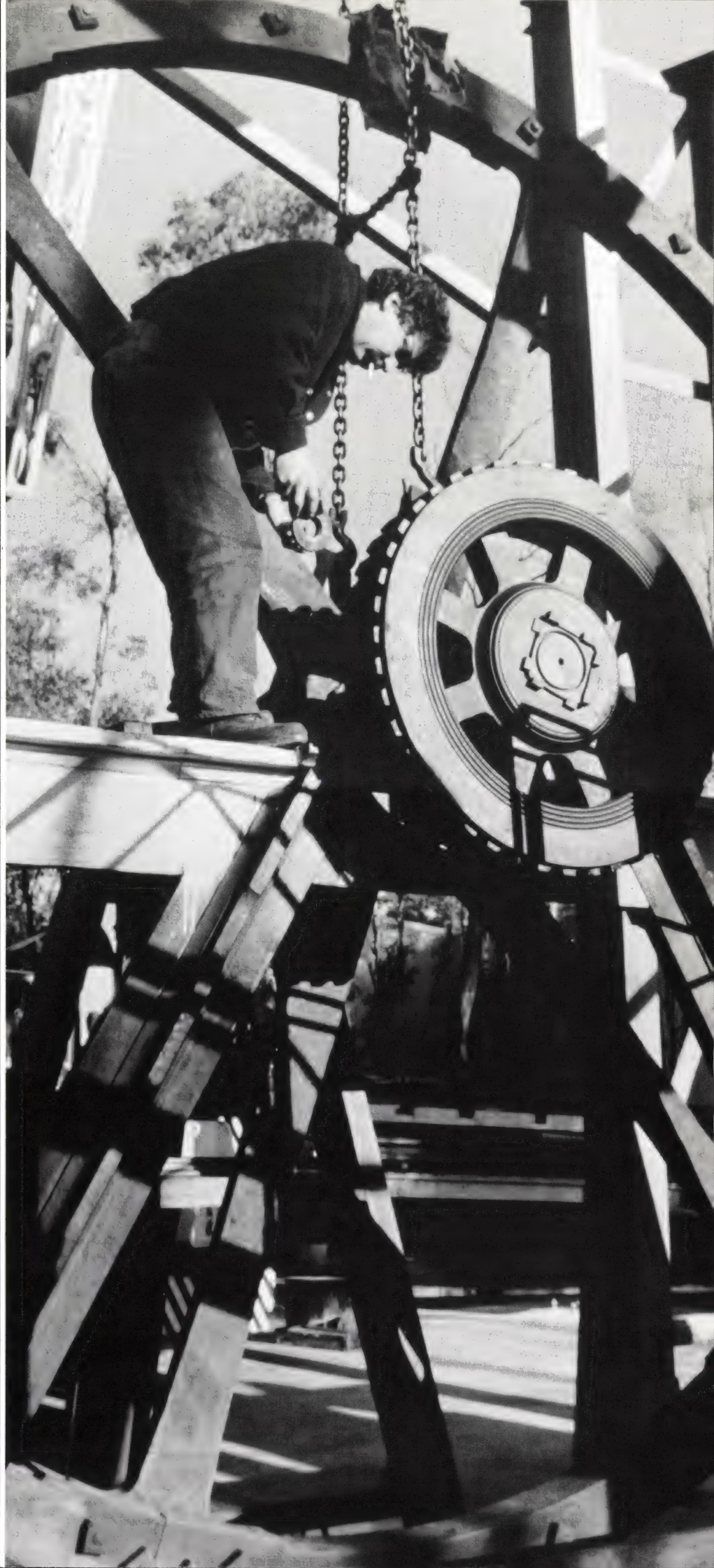
The Power House Museum contract restoration manager, Mr John Gale, said re-assembly work on the steam engine was being carefully organised.

'The aim of the restoration is to reduce wear on all original components such as bearings and pistons can be put back into the engine leaving it exactly as it is now'. Originally, the steam engine was installed and first run in Whitbread's Brewery in London on July 22, 1785, operating non-stop for 102 years before being dismantled and replaced. Then one of the trustees of the then Museum of Applied Arts and Sciences, Professor Thomas Liversidge, recognised the value of the machine and was allowed to ship it to Sydney.

After being re-assembled and put on display by the museum, an electric motor was added to drive the engine's wheels and cogs.

The engine is the oldest existing rotative beam engine in the world. Two other similar engines have been built but were destroyed by fire.

A director of Extraman, Mr Tom Smith, said the transfer of the steam engine to Castle Hill was one of the more demanding projects his company had been involved in and underscored the ability of contract labour to complete difficult assignments quickly and efficiently.



Right: The Power House Museum's 198-year-old steam engine undergoing restoration work at Castle Hill, Sydney.



# **Psst...have you sent your subscription to NETWORK?**



## **MANY ANNUAL SUBSCRIPTIONS ARE DUE NOW. SO POST YOUR CHEQUE TODAY . . .**

A NETWORK subscription costs only \$12.00 per year posted anywhere in Australia, and can bring a great deal of pleasure to the railway enthusiast.

NETWORK is full of colour and interest, and is still the only official magazine of Railways of Australia. Makes an ideal gift too!

NETWORK is published quarterly, in March, June, September and December. Send the coupon now to:

**Circulation Manager 'NETWORK', Railways of Australia Committee,  
325 Collins Street, Melbourne, Victoria 3000.**

Please mail 'NETWORK' for 12 months to:

Name .....

Address .....

..... Postcode.....

Enclosed is my cheque/money order for \$12\* being annual subscription.

(\*A\$16 SURFACE MAIL OVERSEAS)





# Westrail prepares rollingstock for hefty harvest

Westrail has recently completed the construction of fifteen grain wagons at its Engineering Workshops at Midland.

The new wagons are part of an ongoing construction programme being undertaken by Westrail to improve the grain wagon fleet.

The new XWA series will be utilised on Westrails narrow gauge rail network and are specially fitted with automatic couplers to give greater draw bar strength enabling more wagons to be coupled together to haul larger tonnages.

A further fifteen grain wagons will be constructed between October and December with an additional thirty wagons due next May.

Westrail last financial year hauled a record 4.7 million tonnes of grain on rail and the newly constructed

wagons will be a welcome addition to the fleet particularly when early forecasts indicate Western Australia could have another high grain yield.





# RAILCARS DIESEL

## By a Special Correspondent

Yamota is not the name of a famous Japanese admiral. You'll find Yamota ticking over at Platform 2, ready to depart for places like Rocky and Bundy. Because in Queensland a self-propelled passenger train has been known to railwaymen simply as a "Motor", for some 70 years.

In other parts of Australia such a vehicle may be called railcar; motor car; railbus; diesel car or train; derm for diesel-electric motor car; dmu for diesel multiple unit, with dmmu/demu/dhmu variations along the theme of mechanical/electric/hydraulic drive; RDC for rail diesel car; Budd car for the firm which built it; DRC as an obvious remarshalling; autocar; autorail; doodlebug; and in the bad old days when more combustible fuels were used, petrol car; petrol-electric; or gas-electric.

There were once steam cars in Australia, and some would say even the famous XPT falls into the railcar category. For XPT was offered and accepted as an alternative to a specification based on Westrail's famous "Prospector". Which is beyond doubt a railcar — in fact, still close to the Ultimate Railcar.

So railcar it will be, and the hybrid vehicle will be defined as a non-electric self-propelled car that either carries passengers or pulls a short train of matching trailers to carry them instead. And that simple definition covers a wide range of Australian rolling stock, old and new.

Railcars can have bus or train-like bodies built in timber, steel, or aluminium; from two to six axles per body (including three); from one to three engines, horizontal or vertical, and disposed under the floor or above it; and mechanical, electric or hydraulic drive.

That gives 1,080 possibilities alone, and most of those that are physically possible have been tried somewhere at some time. Railcars used in Australia today have maximum speeds ranging

from 80 to 160 km/h; comfort ranging from fundamental to airconditioned luxury; provision to run alone or coupled in multiple-unit like an electric suburban train; and a limited trailer haulage capacity or none at all. So railcars are an exceptionally varied breed; purpose-built, of a character unique to a railway, a manufacturer or a power unit supplier, and quite a different native-born creature from our highly-standardised diesel locomotives. Yet for all this diversity and individuality, Australian railways have been relatively consistent in their choice of railcar from order to order. There are consistent mainstreams of railcar thought, and on one Australian railway the stream ran for as long as 34 years. Even longer streams are traceable in terms of engine and transmission, for almost all railcars have one thing in common.

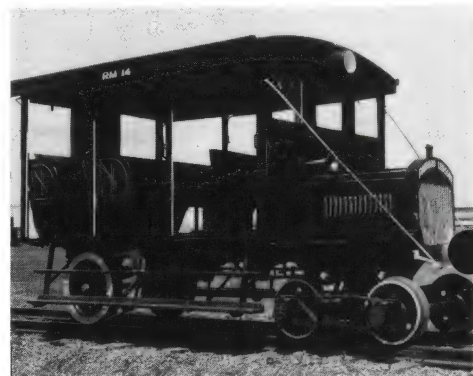
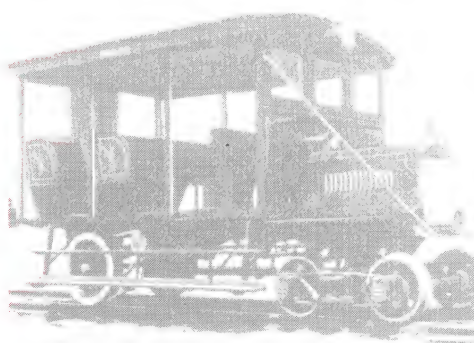
Their power plants are derived not from locomotives but from heavy commercial vehicle practice. And in recent years, from underfloor bus-type engines.

**Role.** Railcars were born when William Bridges Adams built a steam-powered car for the Eastern Counties Railway in England 135 years ago. Then and thereafter, they were found primarily in places where passenger traffic was at once too light for a loco-hauled train, and yet was a sufficiently regular and irrevocable commitment to carry the costs of providing a special-purpose vehicle.

In the early days of the internal-combustion engine, capital costs were low, and favoured the primitive railcar more strongly than they favoured the cars of today.

Before the First World War, for example, a light 4-6-0 steam engine for branch-line service cost about \$6000

*RM14, the famous Panhard preserved at Redbank Museum. The 3-axle charabanc arrangement of this petrol rail motor was perpetuated in subsequent 45hp AEC rail buses, later models (and petrofits) being diesel-engined and in the 1930s enclosed. The step-back in technology from the McKeen car will be evident — but the Panhard worked, and lasted (QR).*





new, and a passenger coach about \$1500-\$2000. A railway expanding its frontiers could put a new branch-line in business with brand new equipment for under \$8000.

Few railways did this, of course, preferring to redeploy into secondary service their older hand-me-down equipment instead (today's in-word is "cascading").

By 1920, when railcars were really coming in, the cascaded worth of the same branch steam train was probably \$4000 whereas a light petrol rail bus could be bought or built for under a third of this, particularly if war surplus truck chassis were used (and many thousands were available.)

Today, however, consumer expectations are rather higher. A respectable 115 km/h air-conditioned railcar is worth around \$1.2m new — a little more than a branch-line diesel loco if railways were still buying them, which they are not — and a modern hauled chair-coach is worth about \$0.8m.

The gap that previously favoured the railcar as minimum-cost providore of the minimum-sized train has narrowed considerably, and for a train of around three cars a locomotive and coaches will usually prove to be the cheaper. Especially with cascaded equipment. Another cost factor weighing against the secondary-service railcar, and vitally important when railways and Governments have to take hard decisions to replace over-age railcar stock, is the need to provide reserve capacity during holiday or commuter peaks.

This means holding more railcars in a good state of repair, of accepting trailer haulage and degraded performance, or parking a reserve set of coaches on some siding.

The locomotive's superior flexibility in being able to haul a few carloads of through freight, or pull a proper goods train on its return trip remains today as always.

But the greater threats to the railcar's classic secondary-service role are the postwar growth of sealed rural roads,

which allow bus operation at better than secondary-rail speed, and the low per-seat capital cost of that bus.

Built as a flexible 50-seat passenger/mail/baggage combine, our \$1.2m railcar will cost \$24,000 per seat; coupled to a 72-seat \$0.8m trailer, the 122 seats will cost \$2.0m which is still nearly \$16,400 per seat.

A 50-seat air-conditioned bus with underfloor baggage bins and the ability to tow a parcels trailer will cost \$210,000 or only \$4,200 per seat.

And the back-up reserve capacity needed for peaks is available from the local charter-coach operator at the other end of the Traffic Superintendent's telephone.

In capital cost terms, therefore, the country railcar is fighting a losing battle, which is why so many country railcar services in Victoria, WA, NSW and NZ have in recent years been replaced by convenient road coach services, run either from a provincial main-line railhead, or directly from town.

### Present-day Applications.

There are, however, three areas where while not actually making a profit, the Australian railcar is still alive and well. These are fast, medium-density inter-city main-line service, commuter feeder traffic, and heavy suburban service. In all of these modern railcar's high power-to-mass ratio (typically 6 kW/t) and high proportion of adhesive weight (typically 25 to 50 per cent of the axles are driven) confer rapid acceleration and the prospects of better point-to-point journey times.

This advantage especially applies on trips combining heavy grades, slow-downs for sharp curves, and frequent stops. In NSW, railcars are allowed to exceed loco-hauled "speed board" on curves by 10% and this represents useful savings in trip time and fuel. Often all three conditions are also found in commuter and interurban service, e.g. on the Newcastle, Wollongong and Goulburn lines (the first two of which are being electrified by the SRA of NSW) and in the Adelaide Hills.

Diesel railcars operate all the Adelaide and Newcastle and virtually all of the Perth suburban service, most of the residue of country service within SA, and some of the NSW Daylight Express services.

Much of the off-peak suburban service in Brisbane was, until the recent electrification, likewise run by diesel railcars.

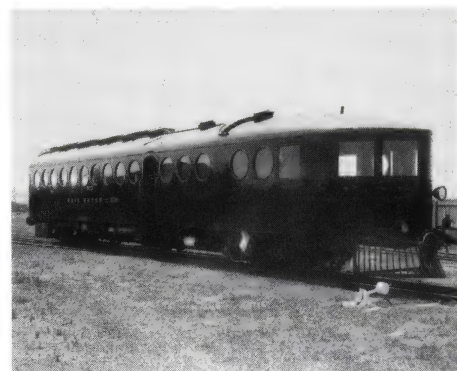
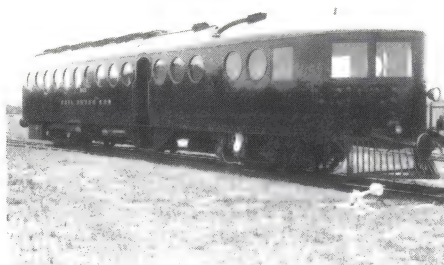
In terms of direct operating cost a railcar usually wins hands-down over a short locomotive-hauled train, primarily because it has a minimum crew of two people: driver and guard.

On the more prestigious railcar runs, a conductor and several stewaresses are added to provide much the same high-quality service as found on comparable locomotive-hauled daylight express trains, at much the same crew cost per seat.

The railcar is more maintenance-intensive than the locomotive-hauled train. This is partly because the railcar's quick running (1800-2000 rev/min) automotive type diesel engines wear out faster than medium-speed (900-1100 rev/min) locomotive diesel engines. Railcar engines (with one significant exception) therefore require shopping for overhaul in the range 250,000-400,000 km, which a good locomotive diesel can double. The other reason for higher maintenance cost is that on a railcar train, there are simply more engines and cylinders to look after; a single car usually has two traction diesels (and sometimes a third auxiliary). A full 8-car diesel train in NSW had eight diesels; its XPT replacement has but two.

But being lighter than the equivalent loco-hauled train, the railcar is much more economical on fuel for identical schedules. The light 2000 class cars in

*QR's rail motor 3 was one of the pioneer McKean cars that Victoria also imported before the First World War. The petrol-mechanical power bogie is located within and beneath the capacious wind-cutter cab of the rivetted all-steel body. Those buffer columns look rather bendable; other photos show the buffers connected by an SRA of NSW style buffing plate (QR).*





Queensland, unusual for post-1960 stock in being single-engined, have returned 10 car-mile/gal. on some services; figures of 3-4 (power) car-mile/gal. are more common with heavier air-conditioned railcars. The fuel burn depends on the power-to-mass ratio, the schedule set over a particular route (and here the railcar's potential is usually fully exploited) and thus the load factor on the power plant. For it is a characteristic of a well-engineered railcar, working a well-planned service that the car can cruise at high speed for long distances on part throttle, with much the same moderate specific fuel burn per kWh of engine output, and still have plenty of power in reserve to make up lost time. These more favourable operating conditions also ease the duty cycle on the diesel engines, and reduce maintenance costs. With railcars it has always paid to power-up, and the most successful designs have usually been the high-powered ones.

A useful positive by-product of the multiple-engine railcar, or diesel train, is higher reliability. Even on the best-run railways, diesel engines occasionally falter and on most passenger trains there is only one locomotive up front. Under the floorboards of railcar trains, however, there is a minimum of two and often four, six or eight traction diesel engines.

Very, very rarely does a railcar fail to get you home — maybe a few minutes late, but home nonetheless.

But because railcar engines tend to fail more often, the planner has to provide adequate power to get the train home with one engine shut down.

This can be critical when trailers are pulled over heavy gradients, and has destroyed the service reputation of many a design.

**Early Days.** The earliest serious application of internal-combustion railcars in Australia is believed to be the two Victorian Railways' McKeen cars bought in 1912.

Developed by the McKeen Car Company of Omaha, Nebraska before 1910, the vehicle was a rather

fearsome-looking bogie steel car with a "windcutter" cab like a ship's bow, the nautical effect being complemented by porthole saloon windows.

A long wheel base power bogie at the leading end carried a transverse 6-cylinder petrol engine of about 150 kW; the drive was by crash gearbox, and chains coupled the axles in a B-2 arrangement.

The five similar cars bought by QR in 1913 are less well-known than the VR McKeens. The QR cars were used on suburban and short-haul main line runs to Southport, some having a large plate, rather similar to that adopted by the NSW for diesel locomotives forty years later, spanning both buffers. After persevering with them (the engines were particularly troublesome) both railways gave up in despair — VR during World War 1, finally rebuilding its two cars as steam-stock trailers in 1919 — and QR not long after. Omaha being in Union Pacific Railroad territory, however, the UPRR purchased a larger fleet. They ran with mixed success until the end of World War II.

**Early Railbuses.** The earliest use of railbuses in Australia is believed to have been in Queensland, where a very old 1918 example still exists. Derived from the Edwardian-era charabanc and preserved at the Redbank museum, RM14 is a 2-axle, wholly open-sided, bench-seat Panhard Levasseur, with a 4-cylinder petrol engine of around 17 kW and a mass of under 3.8t. Cars of this type set the standard for a long run of 2-A derivative cars (petrol, diesel and matching trailers) built in QR's Ipswich shops. Early cars of similar inspiration based on petrol-engined bus and truck chassis were also used in NSW from 1910 and in Victoria from 1922.

Later railbuses of this type had (like the QR Panhard) a leading bogie under the bonnet, and railway-built matchboard-side bodywork, arranged in a bus-like open saloon in NSW and (on two axles) in Victoria, where the sides were originally open. A Charabanc layout with side doors to each seat bay —

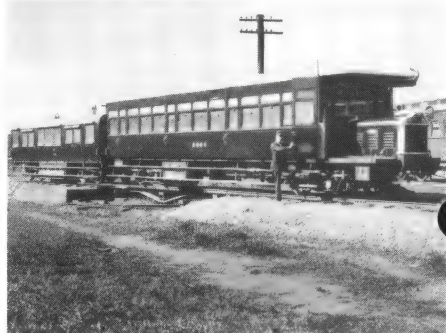
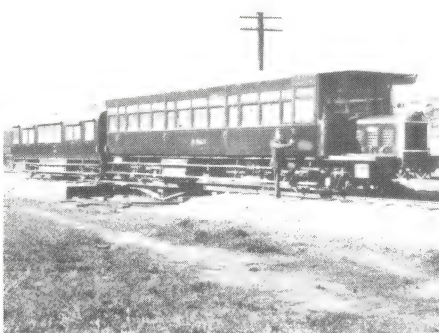
again originally open above the waist — was used in Queensland. Side curtains kept out some of the weather. While the NSW Rail Motor No. 1 used a 3t Moreland truck chassis, QR and VR used an AEC model.

The AEC chassis was powered by a 4-cylinder petrol engine derived from the famous London General Omnibus Company's type B ("Old Bill") bus of 1910, and the War Office's standard truck chassis of World War 1. Many such cars were re-engined or built new with AEC diesels.

The drive was by plate clutch and gearbox onto a single back axle. QR cars were built to pull up to three matching trailers, and fitted with a compressor and simple air brakes to permit this. Because the bus gearbox had only low-speed reverse these cars were all single-ended and the train had to be turned on a triangle, or the rail motor uncoupled from the trailer and turned on a table, at the end of each trip.

Victorian readers may recall the short turntable used at Somerton near Melbourne, before standard gauge days to turn the antique Fawkner-Somerton railbus.

*When the QR motor stretched to outgrow the 3-axle arrangement, a bogie had to replace the single rigid rear driving axle. But the basic power train remained the same. RM40, the first 8-wheel railcar after the McKeens, was an elegant Ipswich-built petrol (later diesel) vehicle running on English-type carriage bogies. The etched rings on the windows were to remind patrons used to open-sided motors that this motor, unlike the trailer, was glazed, contemporary Brisbane trams were marked the same way. Note, too, the bogies on that trailer, whose axleboxes are tied together with leaf springs. QR men who fought in the middle east would have seen similar bogies under British War Office vans in Egypt and Palestine. The slinky RM40 seems rather long for the rail motor turntable. She was not the last 8-wheel motor, but many subsequent AEC cars reverted to the shorter 3-axle arrangement.*





Later derivatives of the 3-axle railbus on QR had four axles, i.e. two of the rather primitive bogies, with petrol and later Gardner diesel engines. But the archetypical old-time QR motor was very much a wooden-bodied AEC railbus, and at least three examples still exist, including the famous "Leaping Lena" still in traffic on the isolated Normanton-Croydon line in the Gulf country.

**Kathleen and the 42 ft. RMC.** In all of the early railbus concepts, the growth potential was limited to the capabilities of a single engine, around 30-35 kW from petrol engines by the mid 1920s and reaching some 90 kW from a 6-cylinder AEC diesel by World War II.

The power demands of the truck and bus industry fixed this growth rate, and in turn, stunted the growth potential of the equivalent railcar.

To break the bus nexus and obtain a bogie car with all the floor space available for payload the NSW Railways tried a totally different tack in 1920, when cheap war-surplus Leyland petrol truck engines were available.

A prototype car (the original Rail Motor No 2 and named "Kathleen") was created by taking a standard NSW American-type wooden suburban car, building a small cab on each end-platform, and fitting a vertical 6-cylinder Leyland petrol engine under the floor.

To obtain a full reverse this engine was given a specially modified camshaft which altered the valve events and reversed the rotation of the crankshaft.\*

The engine had to be restarted after each reversal, but as engines were splash-lubricated in those days there was no oil pump, and lubrication

arrangements presented no problem. The radiator was under the floor.

Kathleen's drive was through a four-speed crash gearbox and, the engine being itself reversible, there was no need for a reversing gearbox. So two plain, truck-inspired worm-type axle drives were used, coupling the axles in a 2-B arrangement.

In two years' operation from 1920 to 1922 Kathleen proved sufficiently successful to encourage the NSW Railways to develop a new railcar totally from scratch, and the result was one of the most successful and longest-lived railcars of all time.

The first Forty-Two Foot Rail Motor Car, designed to provide Mail train connections on branch lines throughout the State, was built in 1923; sixty years later, some cars are still in use.

The 42 ft. RMC (today's 12.8m 'CPH') was designed as a double-ended low-roof bogie car down to an incredibly low roadworthy mass of only 14.8t which, on a per-seat basis, has still to be bettered.

The wooden body was light but fairly conventional. The underframe was a major break-through in being an all-welded (yes, welded, in 1923) Warren truss with a mass of only 2.1t.

The welds for the whole car — mostly on the underframe but on the bogies, too — covered 300m and took 90 man-hours.

The car was fitted with railway buffers and screw couplings to permit dead

haulage to and from the shops — which wasn't often, but in view of the light construction, was always at the back of the train — and to operate with a matching 12t trailer, of which five were built.

The original bogie was very innovative indeed, for to save mass it had inside bearings, no swing bolster and disc wheels.

These were made by electrically welding two thin saucer-shaped steel discs to the cast-steel hub (boss) and to the rim, onto which was shrunk a conventional tyre locked by Gibson ring.

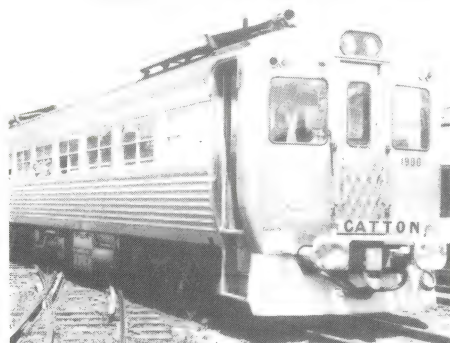
The single driving axle had larger wheels than the three trailing axles. Some trouble was experienced with these wheels and in due course the rather daring bogie was replaced, at a mass penalty, by a light but conventional equaliser-beam truck with spoked wheels.

Reflecting experience with Kathleen, which had proved to be somewhat underpowered and boilable, the 42-footers had a single 6-cylinder Leyland petrol engine of 85 kW (side valves, aluminium pistons, splash lubrication) driving through a clutch, a four-speed crash gearbox and a cardan shaft onto an axle drive.

The latter incorporated a rod-operated sliding dog clutch reverser.

*QR car 1900 was one of two innovative twin-engined AEC diesel-hydraulics built by Comeng in 1954-55, the first Budd-type all-stainless, steel car to be built in the British Commonwealth, and only the second in the world to have curved bodysides. After many hassles with an ingenious and troublesome air-operated plate clutch reverser inspired by the Budd RDC reverser, an Ipswich team achieved the impossible by fitting in a standard BUT mechanical transmission between the diesel engines and the inboard axles. The cars work well but are heavier, cleaner, and more expensive on fuel and maintenance than the 2000 class cars.*

\* Large marine engines are still reversed this way, and few people realise that a 4-stroke diesel engine can also fire and motor, albeit rather erratically, if cranked in reverse-rotation. This created problems on early diesel mechanical multiple unit trains when reversers "stuck" in the wrong direction; the reversed engine would motor backwards and fire, its exhaust gases igniting the oil-bath air cleaner and creating a blaze long before the driver realised anything was amiss.





The radiators were on the roof, where railcar radiators should always be in this hot and dusty country, and were cooled by natural air circulation. The maximum speed was around 80 km/h, air brakes were fitted, and one trailer was taken on lines where gradients permitted. Nothing else was hauled. Throwover seats ("the subject of some complaint by passengers" — 1927 report) were provided for 21 1st and 25 2nd class passengers, with tip-up seats for a further 9 people in the van. And the car had a toilet. Fifty-five passengers in 14.8 tonnes, or 270kg per seat.

Rail Motor No. 3 was launched into traffic in time for Christmas 1923. The happy combination of 5.7 kW/t, underfloor engine, roof radiators, maximum revenue space and a determination from Commissioner to bush fitter that this project would succeed produced exactly the results desired.

The cars took over from unpopular mixed trains, gave 6 mile/gal. (despite a petrol engine with a 4.5:1 compression ratio!) and cost 1s 4d (6.3 cents/km) to run when a steam train had cost 2s 4d per mile (14 cents/km).

Engines ran over 110,000km between overhaul, although maintenance conditions were primitive and petrol came in throwaway rectangular 4 gal. tins.

This was no experimental project, for no less than 37 cars were built. About a dozen are still bouncing along after 60 years' service. For in the 1950s they were fitted with 6-cylinder 71-series GM diesel engines of 115 kW, Twin Disc hydraulic transmissions, air-operated reversing final drives and multiple unit control.

In every other significant respect the CPH of today is a roaring-twenties railcar, possibly the oldest railcar fleet in regular service anywhere. You can still ride one on the Illawarra line (why not, for a Sunday outing?) and if you wish to rent a private train, a 42-footer is still the cheapest offer available from the SRA. If you are so captivated by these vintage cars that you want to buy a

model for your mantelpiece, there is an exquisite brass replica available.

The central figure behind the programme was an NSW engineer, Mr Rupert A. Holloway, BSc, BE, AMIE Aust. His is the mantle of Australia's greatest railcar pioneer, yet we doubt that any reader would have heard his name.

## Victoria and South Australia.

The Riverina was the first NSW district to be 42-footered and the VR was impressed by the cars it met at Tocumwal. It built four similar broad-gauge cars at Newport shops in 1925-26 to compare the concept with its primitive 2-axle AEC railbuses. VR had not, however, firmly made up its mind, for in 1928 it bought from the former South Australian Railways a Brill railcar and trailer, which it ran until the units were irreparably damaged in 1947.

The J. G. Brill Company was a long-established American builder of trams. Brill diversified into railcars when it saw the writing on the wall for the American Street and interurban railway industries after the first war, and offered two models of railcar, both used on the SAR from 1924. Both had a relatively light monocoque rivetted shell based on tramcar practice; both were powered by a single petrol engine with the radiator tucked behind the buffer beam; both used a 4-speed mechanical transmission.

The larger 17.3m car was built at Islington under license (VR got one of these and a trailer) and had a 146 kW 6-cylinder Winton engine.

The car seated 65 plus van space, and according to a contemporary SAR publication weighed 25t (VR's car is said to have weighed 30t).

The smaller 13m 46-seat version was Brill-built, and American records indicate it weighed about 15.5t; it had a 4-cylinder engine of only 66 kW.

The larger cars hauled matching trailers of typically 25t, some rather unusually fitted with horse compartments. The Brills had "two plus three" seating

despite their narrow width of only 2.9m and no armrests. They were not very comfortable, but the SAR fleet ran in secondary service for some 35 years, and was thriftily re-engined with diesels for suburban work.

Many operated in the Adelaide area for years — without the horse floats. All have been withdrawn from traffic.

The mainstream of Victorian railcar development between the wars was, however, to be neither the NSW 42-footer nor the SAR Brill car but Brill's arch American rival, the Electro-Motive Corporation's "gas electric" railcar. Others built gas-electrics but EMC's was the best.

The story of this firm, later to become the Electro-Motive Division, General Motors Corporation that sired the modern volume-produced diesel-electric locomotive, has already been told in *Network* (July 1980, pages 15-16).

The 10 VR gas-electrics were built at Newport Shops in 1928-31, together with a fleet of matching trailers. The 46t motor car was unusual for a gas-electric in being double-ended, and was powered by a single 6-cylinder Winton engine of 149 kW, transversely mounted behind the driver at one end, with a front-end roof radiator. A General Electric dc generator, and two

*Although Australian National's ex-SAR "Blue Bird" (250 class) railcars were designed in the early 1950s, they remain among the most handsome and undated cars in Australia. Many observers have compared them with the contemporary US Budd RDC but the Islington-built "Blue Birds" are an original and quite different concept. Unlike RDC, the "Blue Bird" has a stainless-sheeted mild steel body structure, Commonwealth bogies, Cummins-Twin Disc traction equipment, a third engine to run all auxiliaries, and a radiator group at the end of the car set flush with the roof instead of a central roof blister. This 3-car set, photographed in the Adelaide hills, has a matching trailer between the two twin-engine power cars.*





GE traction motors on the powered bogie beneath provided the drive. Van space and the saloon filled the rest of the 18.2m body and seated 77 people (27 1st class, 50 2nd). The car had American type equaliser-beam rivetted bogies, which gave a reasonably good ride at speeds up to 100km/h. It was demonstrably better than any of the other three VR models of railcar, and the cars were popular with the passengers.

Re-engined with paired GM 6-71 diesels rated at 205 kW and reborn as diesel-electric rail motors, or 'derms', the fleet settled down to another 30 years' useful service.

Two have since been rebuilt yet again with longitudinal engines, and fitted with new bogies, pushing the mass up to 51t.

These 55 year old cars are the last Electromotive fleet running anywhere in the world and are likely to run on . . . and on . . . for as long as the engineers love them.

You can still ride derms out of Spencer Street, and there is a very handsome model of a rebuilt car available for readers who prefer Victoriana on their mantlepiece.

**Western Australia.** After mixed success with three 30 kW 2-axle petrol-mechanical cars built by Dorman in England in 1922, the old WA Government Railways underwent a technical relapse and in 1931 bought a Sentinel-Cammell steam railcar for suburban work\*. In 1937, however, WAGR moved well up-market into diesel-electrics — the first such cars in Australia — with the six country railcars of the "Governor"

class. These imports used a power train heavily pushed into India and elsewhere by Armstrong-Whitworth in the UK, and had a single 6-cylinder Armstrong-Saurer diesel engine (104 kW at 1400 rev/min) in the body, two traction motors\*\*, seats for 40, and van space; they were 19.2m long and weighed just under 33t. Standard railway-type underframe, bogies and vacuum brakes were fitted — the body was wood — and the diesel-electric cars were in all respects a solid, comfortable "proper railway job".

In terms of capital cost per seat, they were also a very expensive way to service a branch line, even when used with one of the four matching trailers built by WAGR.

The "Governors" created very positive customer reactions wherever they were introduced and ran for 25 years until spare parts for the Saurer engine become unprocurable. For some reason these cars were never re-engined.

The postwar development of the Governor was the "Wildflower" class of diesel-electric trains, each set comprising a twin-engine A1A-A1A power van pulling two passenger coaches.

All cars were built by the WAGR works at Midland Junction — in those days still the junction with the old Midland Railway Company, and the site of both railways' workshops.

The six 19.7m 45t power cars had twin 156 kW English Electric 6-cylinder diesel engines — the small 6 x 8 inch and not the 10 x 12 inch locomotive engine — and long-range tanks for the Perth-Albany round trip. The trailers weighed 22t each and seated 64, and

while the power:mass ratio of just under 3 kW/t was rather tame by most peoples' railcar standards it was a full 50% better than a "Governor" with trailer. With two diesels up front, the "Wildflowers" were conservative but very reliable.

These handsome larch-green railcars, with Midland Works' beautifully-finished traditional timber coachwork proved very popular and lasted until 1975 — as long as country railcar services on the Westrail 1067mm gauge.

In later life the "Wildflowers" were wired for multiple-unit control and assembled in a motor — 4 trailers — motor set, a formation that Westrail could possibly claim (with tongue in cheek) as an inspiration for the XPT.

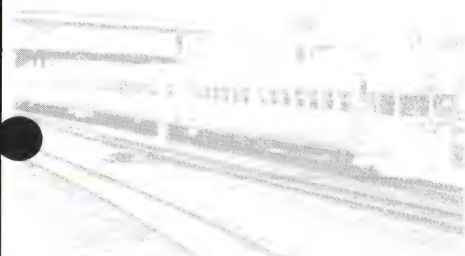
(to be continued)



*All of QR's versatile 2000 class rail motors are powered by a single set of BUT-AEC underfloor diesel-mechanical equipment. The design was conceived at Ipswich in the 1950s as a back-to-back pair, but the 2000 class has run everything from single-car country and suburban trains to the popular Daylight Railcar Tours between Brisbane and Cairns (until these went air-conditioned and loco-hauled) and 4-car sets No. 2021 has a guard's compartment and is working a single-car suburban run; No. 2036 (below) heads a 4-car set of all-passenger motors, the two middle cars being the final gangway-ended "intermediate" version of the 2000 class.*

\* The Tasmanian and the Commonwealth Railways also used these steam cars.

\*\* Believed to have been English Electric.





Railway is not a dead word for travel in Australia, but it has gathered dust. We still warmly approve of trains, but by and large we have given up travelling on them.

You can tell that the idea is out of date, since it doesn't involve rush. Trains embody yesterday's virtues. On them, you can sleep, take a shower, walk about, have a meal, conduct a conversation (or overhear one), have a quiet drink standing at the bar or sitting in an easy-chair. You can read a long book. There are no metal detectors, excess-baggage charges, oxygen-masks seat belts to be kept loosely fastened unless you're moving about the cabin, or tray tables to be returned to the upright position.

You are not made to store your hand-baggage underneath the seat in front of you. Indeed, there is no hand-baggage, for that term was invented by the airlines to convey their disapproval of people who carry possessions with them on journeys. In a train, you accompany yourself with exactly as much or as little luggage as you choose.

When I began my Australia-wide rail journey the first feeling was one of mild exhilaration at travel free of the airline codes. To catch a train, you merely turn up a few minutes before departure and get on. It is a measure of the tyrannies of air travel that this should seem liberating.

In the value-scheme of rush — the imperative of modern tourism that if something is worth seeing it is worth rushing to see — a long distance train journey is exquisitely pointless.

Australia has what might well be the archetype of pointless railway journeys, a service that is to other quaint and outdated trains what the Himalayas are to the Alps.

It is the weekly service of the Queensland Government Railways between Normanton, a one-horse town in the monsoon country, south of the Gulf of Carpentaria, and Croydon, 150 kilometres south-east and much smaller. It is the last of the "tin-hare" rail motors and since there is hardly any reason for going to Croydon, least of all in this jouncing, jarring fashion, it is about the closest thing this world offers to the pure idea of a railway.

From the air, the Gulf country has the texture of worn sandpaper; wheat-coloured and creased, with whorls where the grit has been worn off, a surface of gentle graduations and erosions.

At Normanton you walk on red grit. The kerbstones are granite; the streets

# THE LOG CABIN R

\*By Robert Haupt

*\*Reprinted with kind permission of The Age.*

are Kalgoorlie-wide. There are three pubs and a well (the well is said to be there in case thirst strikes between pubs). There are some dedicated drinkers in Normanton, and I wonder what Commander W. H. Norman, RN — a stiff-backed fellow from his photograph, leader of an expedition in search of Burke and Wills — would make of the town named after him. In the National hotel bar a hand-lettered sign invites participants to a tour of the Philippines: "CHECK OUT ANGELES CITY, WHERE LUST AND DEPRAVITY IS A WAY OF LIFE." A young woman sporting angry grazes on her knees explains: "We had a big party." Another woman buys a "carton" (24 cans of beer) and a bottle of vodka. "Having a party?" inquires the barman.

Everyone puts the drinking down to the climate. It is certainly hot, and I find myself opening a can of beer in the public bar — virtually the only public places in Normanton are the bars — at 11.30 am, as though it is the most natural thing in the world to do. But is it the heat, or the boredom?

The only television channel received here is the ABC — hardly Normanton's cup of tea. The great video-movie boom has struck. The general store — firmly in the grand tradition of deal counter-tops, string, dust and patient help — has a video library where you can rent 'Pretty Baby'. What would Cmdr Norman, RN, make of *that*? I saw a young man in shorts, thongs and cowboy hat marching along with the three pineapples of modern outback life: a "carton" under one arm, six video cassettes under the other and girl friend in tow. In which order, I wondered, would these be consumed? Surely not all at once?

There are diverging views at the hotel about the train's departure time. A resident of eight years' standing claimed never to have seen it come or go. Certainly, the railway station maintains a splendid isolation from the town it was built to serve almost 100 years ago. But *never* to have seen it struck me as a bit rich. But then, Normanton is fond of hyperbole. Take Thelma Field, who works in the kitchen at the National hotel. Thelma, a short, shrewd, middle-aged woman



*The rail motor used on the Normanton to Croydon Railway: driving the tin hare is not easy.*

with pursed lips and a habit of interrogating you with her head cocked to one side, is a handwriting expert of, on her own account, international qualification and renown. She produces a clipping from the 'Cairns Post' to confirm this — and so it does, having presumably been compiled from information supplied by Thelma Field. By the time I met Thelma, I had a sizable sample of handwriting (a slight tendency to slope backwards; full of abbreviations; tending to illegibility) and I showed Thelma some. Modesty does not allow me to record here the rare qualities of courage, compassion, wit, sensitivity, wisdom, grace and justice that lay there revealed to Thelma, but I could say that they would not have been too modest for Caesar Augustus. I made the sceptic's test: surely, I asked, my handwriting revealed something bad or nasty? Thelma asked me for my signature, which I gave her. She analysed it in silence for a few moments, then announced that I had a conflict between head and heart. I would have to make a decision soon, and it would be painful. In the 'Cairns Post', Thelma is quoted as describing handwriting as "a crystallised gesture". Clearly, I must cease making gestures. There is a fine night's sleep available at a reasonable price at the National Hotel, Normanton, though the walls are somewhat thin. The old music hall joke went: "Walls so thin, you can hear the woman next door change her mind." The woman next door to me was



# THE CUT RAILROAD



sighing and moaning — was she at a party? — but it did not go on for so long as to be demoralising. Anyway, there was a train to catch next morning. The NORMANTON-CROYDON Railway System runs on Log Cabin Fine Cut tobacco (in the round red tin). It may be possible to operate it without a supply of Log Cabin Fine Cut, but you couldn't be sure. It's a long time since anyone tried. Perhaps it would run on Lucky Strikes, or Turf cork-tipped: but, then again, there would be grave disadvantages with ready-mades. The lack of tins, for a start. In the station master's office at Normanton, 10 Log Cabin tobacco tins are needed to hold down various sheafs of paper on one desk alone (the Normanton-Croydon train does not travel an inch without generating a prodigious amount of paper). On the shelf above this desk another five tins stand in reserve, in case of a sudden invasion of more paper — say, for instance, it was decided to put the line through to Cloncurry, its original destination.

The plans to go to Cloncurry were abandoned around the first World War, but life is a chancy business and you cannot have too many tobacco tins about. Another table in this dimly lit office bears a stack of nine tins. The receptacle for pins on the station master's desk is, of course, a tobacco tin.

All this fine-cut tobacco goes as fuel to Charlie Honey, the laconic, sardonic, slow-moving, quick-thinking supremo of this odd railway. His first act of a morning is to light a "durry" — his

preferred style is rather loose, with a lot of tobacco extending from the end of the paper, giving the finished product a raffish look, rather like Charlie himself. His last act of a night is to put one out. The tins hold the papers down; the tobacco picks Charlie up and gets him going. He has a rather nasty cough. Driving the tin hare is not easy. It is not a matter of getting in and letting her rip. You have to interpret the track. There are waves in it, which Charlie reads like a brain specialist with an encephalograph from a mildly disturbed patient.

When the lines turn to spaghetti, Charlie reaches for the brake, so your progress is one of almost continual braking and acceleration. Charlie is not even faintly complimentary about his gang of fettlers; they, in turn, complain that he drives too fast.

The rail motor begins to buck and sway well before it is out of the Normanton yards, and keeps it up for the three-and-a-half hours it takes to get to Croydon. The motion is a curtailed roll and pitch, like that of a small boat in a medium chop.

The feeling of being at sea is added to by the thick grass that at times obscures the rails. We are four passengers, all sitting in there behind Charlie, looking over his shoulder. It is like driving the train yourself.

This railway has been classified, lock, stock and barrel, by the National Trust. I am told they would have classified Charlie — tin, papers and durry — had he been willing. As it is, I worry (as his wife does) about his smoking. He has

already had an operation to save a leg, following circulation problems. He claims it has turned him into a haemophilic.

Charlie doesn't use three words where none will do. I found him and his sidekick, Cedric, an Aboriginal youth, at the inspection pit, preparing the tin hare for the next day's run.

"Pull the lever, Cedric." Cedric, without a sound, goes into the cab and works the gears. "Hard as you like." The sun beats down, the flies drone in the yellow grass. I pick up an abandoned dog-spike, and drop it with a yelp: too hot to hold.

The Normanton railway station is a folly in galvanised iron, worthy of a town 10 times Normanton's size (which, apparently, Normanton once was). As I observed its grand curves — by tin shed, out of St Pancras station — a remarkable meaning struck me: this is not a museum!

Since the line opened on 20 July 1891, with three A-10 steam locomotives, five carriages, 68 wagons and two guards' vans, it has operated as a regular part of the Queensland Railways. It is the only disconnected part of the Queensland system and surely its being out of reach of the "inspection vehicles" maintained for the railways commissioner and his senior officials was something to do with its survival. Did Queensland Railways forget to close it down?

The trip to Croydon takes you through flat grassland, and a sparse forest of bright-leaved trees of uniform height. Nothing is above 10 metres in height, and there are few birds.

There is a broad curve shortly after the Norman River crossing, legacy of that decision not to go to Cloncurry after all.

Termite nests in typographical grey litter the ground like abandoned punctuation marks. I saw brumbies and brolgas, but no crocodiles.

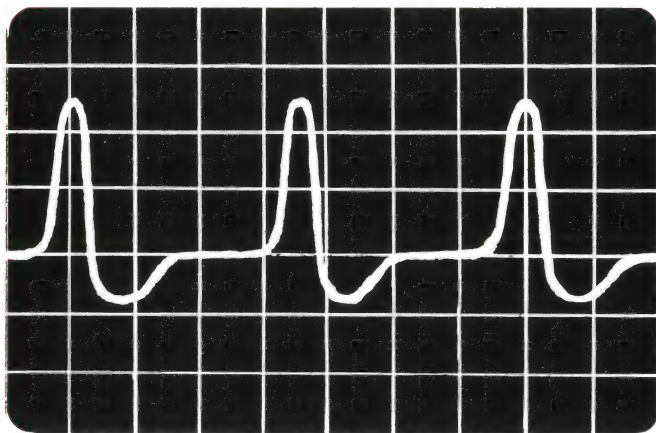
There are four distinct sounds when the tin hare is under way: the roar and whine of the rails (magnified by the iron sleepers, which are packed with mud); the grind of the motor; the clack of wheels; and the general, arthritic chorus of the bodywork. Conversation is impossible.

I was told in Croydon that some tourists arrive there cursing the tin hare. It is not hard to understand what they dislike: the noise, the jolting, the duration and straightness of the trip. But tourists are liable to miss the whole point, which is that the train was not built for them. It is a working railway, linking two obscure towns to no significant

(continued on page 53)



for the heart of your  
signalling equipment...



... the good choice is the  
high voltage impulse  
track circuit

a product

**JEUMONT-  
SCHNEIDER**

**Division Appareillage Traction Signalisation**

194, avenue du President-Wilson  
93212 LA PLAINE SAINT-DENIS - BP 51 FRANCE  
Tel. : 33 (1) 820-63-73. Telex : 620837 Mecalec PLDNI

**— PRODUCTS :**

- Electromechanical safety relays
- Safety solid state relays
- High voltage impulse track circuits  
with or without insulating joints
- Electric point machines
- Points detector
- Electronic teletransmission

**— SYSTEMS :**

- All relay interlocking cabins (with or  
without geographical circuits)
- Luminous automatic block system
- Automatic block system with restricted permis-  
sivity
- Centralized control of traffic
- Centralized control of sub stations
- Computerized system of train describer
- Automatic train routing
- On-board cab signal system
- Continuous speed control
- Automatic train control

## 'The Alice' to Australia's Wonderland

*(continued from page 7)*

One of the innovations of the new service is the opportunity for passengers to alight from the train at various locations. Special stops have been arranged at Broken Hill for a short complimentary coach tour; the South Australian/Northern Territory border; Kulgera; the "Iron Man" — a memorial to the men who built the new flood-free line and laid 1 million sleepers in the process. Tourists can walk on the fascinating Nullarbor, and at Finke River Bridge leave their footprints on the normally dry river bed!

It's cruise-liner luxury all the way on "The Alice". Air-conditioned comfort, first-class sleeping berths; en suite facilities; a dining car serving the finest cuisine and wines; and a club car where passengers can watch a film or just relax.

Overseas and local tourists now have the opportunity of travelling to Alice Springs either direct from Sydney, or on "The Ghan" operated by Australian National.

They can plan their own itinerary or take one of the exciting package tours arranged by the S.R.A. Travel and Tours Centre at 11-31 York Street, Sydney.

It's colourful brochure "THE ALICE TO WONDERLAND" offers a wide variety of tours embracing travel both ways by "The Alice" or a combination of rail and air. Whatever itinerary is desired, the Travel and Tours Centre can make all reservations.

Alice Springs and surrounds have much to offer . . . Standley Chasm . . . Simpson's Gap . . . Ayers Rock . . . the old Telegraph Station . . . the winery at Chateau Hornsby . . . and the excitement and glamour of the Federal Pacific Hotel Casino Resort.

"The Alice" — the latest great train journey — takes passengers into this wonderland like no one else can. It's an experience of a lifetime!



AVAILABLE FROM  
**KENELEC (AUST.) PTY LTD**  
48 Henderson Road, Clayton, Vic. 3168  
Tel. (03) 560 1011: Telex 35703



(continued from page 51)

purpose. That it should exist at all in this age of tourism and facsimile is a profound tribute to the occasional benefits of administrative neglect. CROYDON is a ghost town that last saw prosperity 70 years ago, during its gold rush. You get off the train and stand, bag in hand, on the red gravel, unsure at first where the town is. Heat pours out of a clear sky; wedge-tailed eagles circle. Nothing else moves. You half expect a director to shout, "Cut!" The dirt road goes past empty blocks covered in weeds. The flies are troublesome, and by the time you have walked the half-kilometre to the hotel you are ready for its shade and ceiling fans.

There are no bat-wing doors, but there are young cowboys (called ringers) and a bunch of old-timers settling in for one or two against that ever-present northern contingency, the heat of the day.

There is no queue at reception, because there is no reception. "You're the journalist," says the man behind the bar. His wife leads me upstairs to my . . . room? Well, no. The rooms are taken, and I must sleep — there is a choice of five beds — on the verandah. The decline of Croydon from the golden years when it had 50 pubs (pubs being the standard measure of the prosperity of gold-mining towns) to its present status is nicely captured in a notice outside its sole hotel announcing the cancellation of a country music concert: "Apparently Croydon isn't worth playing any more." Croydon clings to the railway like a crutch, not because it carries important freight or passengers and only marginally because it is an all-weather link useful during the wet season.

It is almost wholly a matter of reassurance: a question of being able to believe in yourself. If the railway goes, what would be left?

I stroll down in the evening to the station again. The sun is low, and the road seems, if anything, to have become redder. In the gutter lies a red lid, from a tobacco tin. Log Cabin, fine cut. Charlie has changed out of his blue trousers into blue shorts, and discarded his shirt. He is in a yarning mood.

The Log Cabin tin opened and closed, the cigarette paper fluttered in the evening breeze, the match flared — catching Cedric's silent features in its glow — and a thin line of blue smoke rose and caught the last of the sun. The talk was as charming and ephemeral as the smoke.

Time place and name — the cement of plausibility in narrative: were vague or

ambiguous. We braved hazard and injury and Charlie raced motorcycles, was caught beneath falling trucks, and took his train across flooded bridges through snake-infested debris. The evening birds began singing. Three times, Charlie broke into a wheezing cough, hawked and spat. In this time, not far short of an hour, Cedric said nothing. He moved a muscle only twice, to my knowledge: once he sighed, once he looked at his watch. Cedric, not doubt, has heard it before. Abruptly, Charlie finished. He slapped Cedric on the knee and told him it was time to knock off and go and cook his tea. Later, when it was almost completely dark — the quick nightfall of the tropics — I watched them from my verandah walking towards the pub. There were no words, only feet on gravel, two dark shapes and a trace of smoke, just discernible as blue in the last light, following them in the quiet wind like an idea.

That night, I was the only paying guest on the verandah. I had to share it, however, with a large and morose dog, given to uttering sighs of profound resignation, as if it had just been saddled with an insoluble tax problem. After each explosive sigh, the dog stomped around the verandah and settled into a loud and rhythmical scratch, which sounded like a strong man cleaning a coconut with a wire brush.

In a town like Croydon — small declining and remote — the community has an obligation to amuse itself (Croydon does not have a video shop). This imposes a greater burden of trivial conversation — a chat factor — on people in such a town. Simple communication like, "hello", "goodbye" or "sorry" are attenuated almost beyond recognition to a city person. It is as though people, once having begun a conversation, cannot bear to hear it end.

I suppose if you didn't yarn — didn't trade interminable banalities and improbabilities — the day would lapse into intolerable silences.

Tourists flock by the thousands to the "old" towns that have been specially made or reconstructed for them; they are not attracted, by and large, to the real thing.

They like to see people dressed up as people from 100 years ago, and "general stores" and "pubs" that are all of 10 years old.

Croydon is as real a pre-World War I outback town as you could hope to find. But a real town raises problems that are not encountered in the world of make-believe.

It has real people, who drink real beer and use real swear words, just as their counterparts did in the "good" old days. They are towards the dirty rather than the quaint end of the scale of picturesqueness.

Moreover, the towns have real old-style toilets; they are not air-conditioned.

The junk — old boilers and wheels and assorted paraphernalia from the steam age — has not been arranged. There are no guides or signs. There are unpleasant dogs. The general store turns out to be a repository of an astounding farrago of goods, much of it distressingly modern. All in all, from the tourist standpoint, then, the real thing doesn't work. If the tourist make-believe world is the past sanitised, at least you can say that it is clean. In rebuilding our past in this way, we are revealing our deep, European need to impose order on this rag-tag, straggly continent; to make it seem neater — more picturesque — than it is. We want it to conform to our collective memory, which is, at bottom, English, but bent by the force of American television. What we remember is not what was, so we rebuild the past to conform to our memory.

Charlie's railway has contributed no small amount to the past industry: so many iron parts lie beside his line that it seems he could reconstruct the entire railway, including rolling stock, over again and still have a source of spares. But the past industry is draining him of material: bronze boiler tubes here, an iron mile-post there. Few of the things he loses are, in a direct sense essential to the train's running (although he would have preferred to have retained the points lock, whose theft once sent him shooting full bore up a siding) but they are all, in an organic sense, part of the whole, just as shells are part of the seaside even when molluscs have abandoned them, or the red shards at the foot of Ayers Rock are part of the rock.

Is Australia running out of junk? In some lines, like brass bedsteads and kerosene lamps, we are critically short of genuine examples; in others, like locomotive wheels and hand-made nails, we still seem to belong. But the day will come when the last 19th-century artifact has been through the recycling division of the past industry. Then we will be left only with our own material.

This is a sombre thought to end on. You should travel on Charlie's railway while he and it are still there.





**T**he latest developments in rail car technology in Australia incorporating revolutionary design features will provide the State Transport Authority and their Adelaide metropolitan commuters with a standard of comfort normally associated with long distance trains.

The first cars were delivered in August. These augment the present fleet of 110 diesel powered rail cars and 24 passenger trailer cars introduced into the Adelaide metropolitan area in 1955. Twelve 2000 Class powered cars each with a seating capacity of 64 and eighteen 2100 Class trailer cars with a seating capacity of 106 are being supplied under contract by Comeng Aresco Pty. Ltd.

This company is a subsidiary of the Comeng Holding Group of companies. The design and construction of the cars proposed by the Authority is being carried out by Comeng's major rail rolling stock manufacturing company — Commonwealth Engineering (N.S.W.) Pty. Ltd.

This involves them in the building of the bogies, body shells and fitting equipment. The remainder of the interior assembly work will be carried out in the contractor's workshop in Adelaide.

The cars will be used at peak hours in consists of five cars, two power cars and three trailer cars, and during off-peak hours as consists of two and three car sets, one power car and one trailer car or one power car and two trailer cars. The maximum number of cars that can be operated in consist is six cars, two power cars, four trailer cars. Both classes of cars are manufactured from stainless steel material to form a monocoque body construction having curved sides, corrugated flooring and roof sheathing.

The front of the cars and the elevated cab hood are of fibre glass manufacture. All cars have a driving cab at one end.

Passenger comfort, minimum maintenance and maximum reliability have been the criterion aims in the design of the cars. For passenger comfort the cars are equipped with temperature controlled refrigerated air conditioning, carpet on the floor extending up to window sill height on the interior sides of the car, glare and heat reducing tinted glass windows, fabric seats and modern electric fluorescent lighting in the ceiling. The interior side lining above window sill height and ceiling consist of grained fibre glass panels.

Power activated side doors can be operated by the passengers, with safety interlocking controlled by the driver. An elevated driving cab has been developed and fitted to both classes of cars at one end only. This is the first time this type of cab has been fitted to rolling stock in Australia. This enables the driver to have full width vision across the front of the cars, a

feature unobtainable with floor level side located cabs. All cars are fitted with UHF radio equipment to provide a direct two-way voice communication between Train Control in Adelaide and the rail cars operating in the metropolitan area. Also, all cars are equipped with a public address system for communication between driver and guard and to make

## New rolling stock for

### CLASS 2000 - GENERAL DATA (Passenger Power Car)

Service Weight	67 tonnes
Peak Loading Weight	76 tonnes
Length over end of cars	24,800 mm
Length over coupling centres	25,500 mm
Length between bogie centres	17,500 mm
Bogie wheelbase	2,700 mm
Car width at waist height	3,200 mm
Number of seats	64
Brakes:	
Bogie	Girling discs on wheel webs plus four single wheel shoe tread brakes
Air	4 stage electro-pneumatic and emergency
Handbrake	Spring parking brake
Traction engine	2-M.A.N. 4 stroke diesel engine Model D3650 HMU 12 cylinder horizontally opposed develops 373 kW at 1950 rpm.
Transmission	2 Voith T420r Turbo transmissions
Final drive	Voith (all axles driven) Drive ratio = 3.80
Air compressor	Westinghouse 550A two stage 10-14 litres/sec at 620 rpm
Maximum operating speed	120 km/h
Fuel tank capacity	2000 litres
Battery	Lead acid 24 V 264 amp/hour
Auxiliary motor/alternator	Rolls-Royce engine model SF65CT. Newage Stanford Alternator C434B 130kW/161 kVA net continuous at 50 Hz
Air conditioning	Sigma refrigerated split system
Acceleration rate	0.9 m/sec <sup>2</sup> (tare) 0.7 m/s <sup>2</sup> (peak load)
Deceleration rate	From 120 km/h 0.9 m/sec <sup>2</sup> full service brake 1.1 m/sec <sup>2</sup> emergency brake

### CLASS 2100 - GENERAL DATA (Trailer Car)

Service Weight	42 tonnes
Peak Loading Weight	56 tonnes
Length over end of cars	24,800 mm
Length over coupling centres	25,500 mm
Length between bogie centres	17,500 mm
Bogie wheelbase	2,700 mm
Car width at waist height	3,200 mm
Number of seats	106
Brakes:	
Bogie	Girling discs on wheel web only
Air Brake	4 stage electro-pneumatic and an emergency air brake
Handbrake	Spring parking brake
Air compressor	Westinghouse 550A two stage 10-14 litres/sec at 620 rpm
Maximum operating speed	120 km/h
Air conditioning	Sigma refrigerated split system



announcements to passengers on names of stations and train information. Other features incorporated in the Class 2000 power rail car are a guard's compartment, provision for carrying bicycles, wheel chairs and baggage. Each power car will be equipped with two M.A.N. underfloor twelve cylinder four stroke horizontal opposed diesel engines type D3650 HMU naturally aspirated. Each engine develops 373 kW at 1950 revolutions per minute. A device for blue smoke control is fitted to minimise exhaust smoke when idling, a contribution towards keeping the environment clean.

The engine cross bearers are suspended from the side sills by rubber

bonded metal elements stressed in shear. Longitudinal forces due to acceleration, deceleration and impact are taken up by a flexible link arrangement.

The diesel engine has an electric starter motor and fuel injection is controlled electro-pneumatically in four stages. The air for combustion is drawn in through the roof side and the exhaust gases are expelled over the car roof.

The power car is fitted with two T420r Voith transmissions. They are an automatic two speed type embodying two torque converters. The reversing gear is incorporated in the transmission case. These cars have all axles driven through final drives on each axle connected to cardan shafts.

The engine cooling water system is fan cooled, the fans being electrically driven and started by thermostatic control. The cooling water circuit serves the diesel engines and a heat exchanger for the engine transmission lubricating oil. There are four roof mounted radiators used for each traction engine and two for the auxiliary power supply.

The auxiliary power supply is from a Rolls-Royce Engine Model SF65CT direct drive to a 130 kW/161kVA at 50 Hz Newage Stamford C434B alternator. The alternator provides electric power for lighting, air compressor motor, control equipment, air conditioning, radiator fans and battery chargers.

All cars are equipped with three separate types of braking systems,

electro-pneumatic, emergency air brake system and spring parking brakes. The electro-pneumatic system is used for normal service braking, initiated by the movement of a dual throttle brake handle on the driver's control stand in each cab. The handle gives four (4) braking positions: Off, 1/3, 2/3, and full brake applications and operates E.P. valves through the 24 volt DC system.

The emergency braking is initiated by applying the emergency brake valve in each driving cab.

The spring parking brake is applied when the main reservoir pressure is cut off from the parking brake air cylinder and spring force is applied to the brake disc pads.

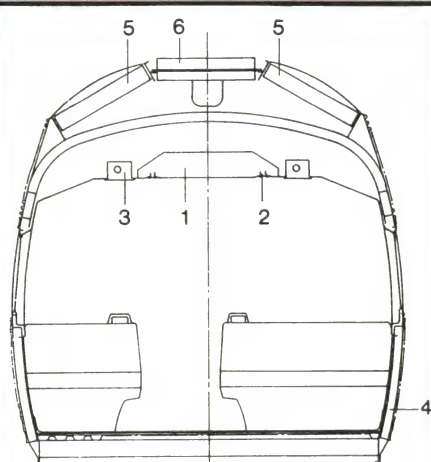
A deadman control feature is incorporated in the dual throttle brake handle or floor pedal.

The bogies fitted under the cars are of a three piece construction, wheels and axles, bogie frame and bolster casting. Each bogie has an "H" type bogie frame, inside axle boxes, equipped with "Clouth" rubber primary suspension and "Continental" secondary air bag suspension. The bogies are designed to give ride comfort and height retaining to maintain constant car floor height. Girling disc brakes are fitted to the web of each wheel on each bogie on all cars and in addition on the Class 2000 power cars only, a single shoe tread brake is fitted.

The introduction of these new trains will represent a landmark in Australian railway history.



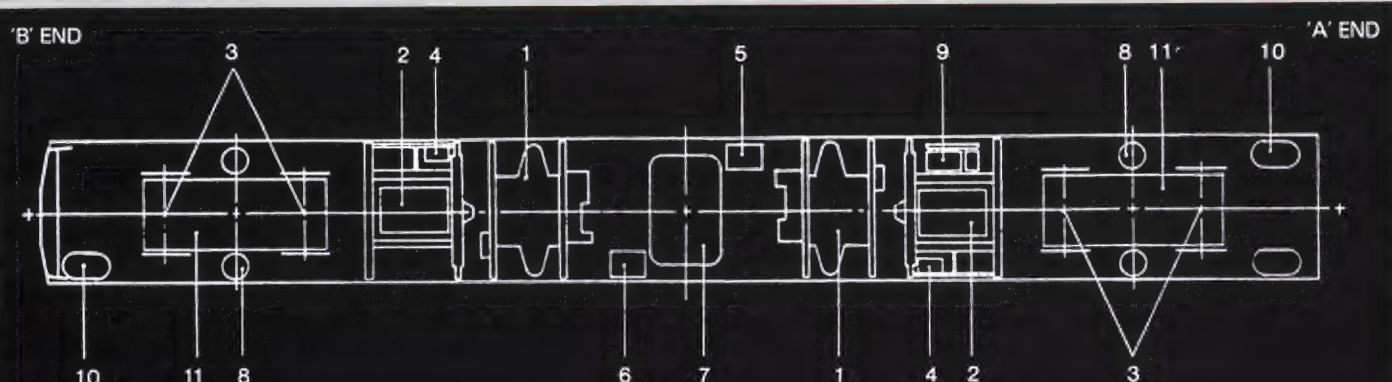
## the STA



Cross Section: Power Unit

1. Main air duct
2. Air distributor
3. Continuous lighting fixture
4. Insulation
5. Radiator
6. Radiator fan

## of South Australia



Equipment on Underframe

- |                                |  |
|--------------------------------|--|
| 1. M.A.N. Diesel engine        | 7. Fuel tank                               |
| 2. Voith transmission          | 8. Continental airbag secondary suspension |
| 3. Voith final drives          | 9. Westinghouse air compressor             |
| 4. Air conditioning compressor | 10. Air Reservoir                          |
| 5. Fuel pump                   | 11. Bogie                                  |
| 6. Battery box                 |  |



# Australian National Sponsors the 'Fringe'

As part of its policy of supporting the Arts, Australian National will sponsor the Adelaide Festival Fringe next year.

The last time the festival was held in 1982 AN provided a 50% fare discount to performers and similar concessions will apply for the 1984 event.

Fringe is best described as the community orientated festival which precedes the main Adelaide Festival — Australia's premier arts event.

Performers and artists involved in the Fringe are at their own artistic and financial risk and it is support in kind, such as AN's involvement, that permit many productions to be staged on the "fringe" of the main festival.

During the last Fringe AN transported some 50 performers to and from Adelaide for the event which in all respects, was highly successful.

The motto, "Fringe moves by rail" was adopted as a theme for 1982 and this is expected to continue for promotion of the 1984 event.

## ... on a different line

Many AN telephone extension numbers in the metropolitan area have changed with the installation of a new automatic telephone exchange.

A new computer-based automatic exchange, to service all AN locations in the metropolitan area including the new passenger terminal and head office, is currently being installed at the Mile End Communications Centre. The new generation equipment has the capacity for many special services including "in dialling".

This facility enables Telecom subscribers to dial AN extension numbers directly without intervention by a telephonist.

More importantly, it will provide better service to the public as all AN business, irrespective of location, will be handled through our new number of 217 4111. It will also enable all local AN extensions to be commonly grouped, eliminating the old practice of selecting tie-line codes currently existing between Norwich Centre, Adelaide Station and Islington.

# Roma Street won't be the same without Pat

Pat Gillett who was head gardener at Roma Street for almost 20 years retired from Queensland Railways on 14th October, 1983, and with him went a knowledge of gardening probably held by only a few people.

Strangely, it was by accident that Pat decided to take up gardening. Many years ago when he was working as a fettler in the Wynnum area he injured his back and as he said:

"I had to find something that would not be so strenuous, so I decided to take a night course of study under the Queensland doyen of horticulture, Mr Harold Caulfield."

The railway gardens at Roma Street Station have long been admired by the people of Brisbane and visitors from interstate. The display of flowers particularly around Exhibition and Warana time is outstanding, but Pat gives all the credit to the 22 men who assisted him.

"They were my biggest asset. I planned what had to be done and they did the work."

Queensland Railways encourages its employees to have neatly kept gardens on its premises and each year awards are given to the winning entrants. It was Pat's responsibility to judge the gardens. And of Pat's home garden?

"It is full of dandelions!" With that remark Pat left us in some doubt as to whether he was really telling the truth after serving almost 43 years with the railways. He plans to spend his retirement fishing, playing bowls and enjoying himself.



Right: Pat Gillett tends his nursery for the last time.

## Equipment reliability 'fundamental' — SNCF chief

(continued from page 24)

reliability, availability, and operating economy of railway equipment.

SNCF does this in the compass of contracts covering reciprocal commitments.

The finest proof of the effectiveness of the collaboration between SNCF and its rolling stock sub-contractors with the equipment makers is rolling stock of the latest technology such as the TGV high-speed train, in which each item of equipment plays an essential role in the quality of the service offered.

The major research and development thrusts undertaken by SNCF and equipment makers relate to the following:

- Improved braking techniques: refined anti-skid devices, high performance disc brakes, new friction materials;
- Identifying new modes of inter-communication between coaches and power cars;

- Improved air conditioning equipment, and its performance and control;
- Improvement of the techniques of current collection for very high speed, and very high power;
- Microprocessor applications open up new avenues which will have to be handled with the greatest care.

These devices will undoubtedly lead to substantial improvements in certain services, in particular those relating to passenger information. Their computing capacity is such that they will presumably lead to grouping a great many functions to be processed in passenger vehicles. This will presumably emerge on even closer co-ordination among equipment makers. Moreover, increased memory storage capacity will refine the troubleshooting function and facilitate maintenance.









— window seat —

## Barry Cooney SRA's new passenger chief

The Chairman of the State Rail Authority, Mr Alex Carmichael, CBE, announced recently that Mr Barry Cooney had been appointed as the Authority's General Manager Passenger Services. He took up duties on November 1.

Since its formation in July, 1980 the SRA has concentrated on making the State's railway services and administration more efficient.

Every area of rail operation has been closely scrutinised.

As part of the continuing process to make the industry more efficient the rail operations areas have been reconstructed.

Instead of a diversity of positions now reporting to the Chief Operations Manager in future there will be three key positions reporting to him. One of these is the General Manager Passenger Services who will control all rail passenger services.

He will directly supervise:

- Urban Passenger Services
- Country Passenger Services
- Passenger information
- Passenger development
- Trading and Catering Services.

Mr Cooney, who is 40, was Deputy Director of the NSW Department of Leisure, Sport and Tourism.

Prior to this he was associated with the airline industry in senior managerial positions.

## Were you in The Alice 30 years ago?

If you were born in the centre of Australia, or attended school there, in August 1933, you could be in for a very pleasant surprise.

The Northern Territory Tourist Commission, wants to hear from people, anywhere in the world, who were resident in Alice Springs in August 1933.

Between August 1983 and 1984, the Commission is celebrating the 50th anniversary of the town's name being changed from "Stuart" to "Alice Springs".

All you have to do is produce a birth certificate, or general evidence, to show you were living in the town at that time (maybe at school). You might even get a trip to the inland town,

famous location of the book, film and TV series "A Town Like Alice".

The area is not only famous for its own unusual, outback attractions and lifestyle, but is a gateway to unique attractions, including Ayers Rock, the world's largest monolith.

Alice Springs was discovered by William Whitfield Mills in 1871, while he was surveying a route for the Overland Telegraph line. He found and named a waterhole "Alice Springs" in honour of Alice, wife of the Governor, Sir Charles Todd, after whom the local Todd River is named.

The area was for many years generally known as "Stuart" after John Stuart, an early pioneer. But in 1933, it was decided to change the overall name to Alice Springs.

So, look at that birth certificate, for information about having been resident in the area in 1933, and send it to Manager, The Golden Jubilee Committee, Post Office Box 5050, Alice Springs, Northern Territory, 5750.

## Tasmania's A. F. Maddock retires

Australian National's Assistant General Manager in charge of Tasmanian operations, Mr A. F. Maddock, will retire in January following a long career in the transport industry.

Announcing Mr Maddock's retirement, the chairman, Mr L. E. Marks, expressed the appreciation of the Australian National Railways Commission for Mr Maddock's achievements.

Mr Marks said Mr Maddock had restructured the former Tasmanian Government Railway and during the past five years freight carried throughout the State had grown by over 50 per cent.

At the same time significant progress had been made in deficit containment as well as major improvement in track condition and the upgrading of the locomotive and rollingstock fleet.

"These achievements can be attributed to Mr Maddock's energy and dedication to ensure the daunting task of improving the railway image, giving service and making the railway an integral part of Tasmania's transport system," said Mr Marks.

Prior to transferring to Tasmania in 1978 Mr Maddock was assistant general manager, Administration and Operations, at head office in Adelaide. Mr Maddock has been involved in transport since 1940, apart from the period 1942 to 1946 when he was on active service.

He was actively engaged in the maritime industry as manager of the Tasmanian Government Shipping Services.

During that period he was responsible for the State's coastal shipping service, vehicular and passenger ferry services and was involved in the purchase and delivery of vessels from overseas sources.

## New track layer for QR

A new Track Laying Machine built at a cost of \$1.55 million by Tamper (Aust.) was officially handed over to Railway Commissioner Mr Doug Mendoza at Banyo Workshops on 11th October, 1983.

The machine is quite revolutionary in rail systems. In fact it is the first in Queensland and only the second of its type in the world used on 1067 mm gauge railway. The other machine is in use in South Africa.

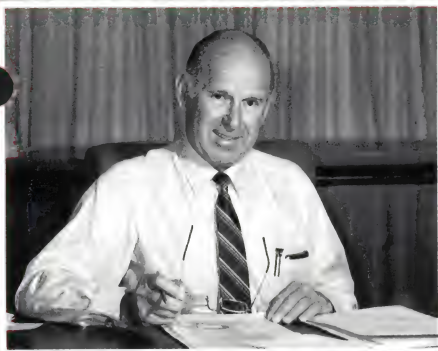
This particular model P811S is capable of laying 3 kilometres of new track each day and 1 kilometre when relaying, whereas present day methods achieve only 1 kilometre of new track and .2 of a kilometre when relaying.

It can negotiate curves of 150 metres radius when working and 100 metres when travelling and it will be used initially on upgrading the Goonyella line and later, as required throughout the State.

Track Maintenance represents some 25% of all Railway working expenses in Queensland.







Mr John Linfoot

## John Linfoot in Operations driver's seat

Mr J. W. (John) Linfoot, 56, became Queensland Railway's first Assistant Commissioner (Operations) on the 22nd of August 1983. In this role Mr Linfoot oversees the industrial relations, operations, marketing, sales and commercial functions of the Department.

Mr Linfoot brings a wealth of experience to Queensland Railways. He was formerly Assistant General Manager of Luya Julius Ltd and he also spent 20 years with Brambles Industries Ltd prior to that. He is a graduate of the Industrial Mobilization Course, conducted by the Defence Department, as well as being a past president of Rotary, a Fellow of Chartered Institute of Transport, a Member of the Institute of Directors and a former Chairman of the Queensland Road Transport Association and Chairman of the National Freight Forwarders Association.

Mr Linfoot said that he has had a long standing association with Railways of Australia and railways in general, particularly in relation to the freight forwarding concept, and that this had contributed to his decision to come to QR.

Married, with a grown family, Mr Linfoot, said that he was very much enjoying the challenge of his new position.

## Good news for SA grain growers

Good news for SA's 10,000 grain growers was jointly announced recently by the SA Grain Freight Review Committee and Australian National. In the second year of a three-year grain agreement between the two bodies,

they have declared a grain rail freight increase of only 7.5% instead of the anticipated 11.54% increase related to the consumer price index (CPI). This 7.5% rate increase follows an average reduction of nearly 4% last year and has been established by Australian National despite considerable setbacks to its grain freight revenue caused by last year's drought which resulted in an \$8 million shortfall in grain revenue for AN. Committee chairman Mr Tony Eichner described the new 1983/84 rate as a good incentive for growers to use rail freight.

"If growers support the agreement and increase their use of rail this year it could have equally beneficial effects on future rail rates and services," said Mr Eichner.

Mr Grant Andrews, general secretary of United Farmers and Stockowners, says the 7.5% increase is a clear indication that AN has entered into the spirit of the agreement.

"The ball is now in the growers' court. If they use local rail served silos not only will they help keep rates down, but their own costs too," says Mr Andrews.

"The many advantages of using local inland silos include elimination of long road hauls and storage problems. In addition the CBH continue its policy to keep country silos open for extended hours where necessary so that growers can continue reaping until late in the day," he said.

## All aboard America fare rides on

Amtrak's popular All Aboard America Fare, which helped to boost ridership and revenue during the spring and summer months, has been extended into next winter.

Under this special fare plan, which was to have ended on August 31, the United States is divided into three regions. The plan offers special maximum coach fares for travel within one or more of the three regions, if reservations are made and tickets purchased for the entire journey at least five days before beginning a trip. All Aboard America Fares will be sold through February 29, 1984, with travel permitted through March 31.

"The All Aboard America promotion is unique to us," said Robert E. Gall, vice president, transportation marketing. "It takes advantage of the benefits of railroad travel, in that this program allows the passenger the flexibility to see a lot of places for a reasonable cost.

## window seat

"The airlines can only give a percent off the fare. We're giving added value." Ridership levels were running below last year, Gall said, until the All Aboard America promotion was introduced. "Since then, we've been ahead of, or very close to, last year," he said. "Our revenue has been increasing at a rate of a little over 5 percent. The airlines' rate of revenue has been between 1 and 2 percent.

## Brits supply \$180m. worth to HK system

Planning and consultancy services for Hong Kong's recently opened electric railway system were provided by Transportation Systems and Market Research Ltd (Transmark), the London-based consultancy organisation of British Rail, and altogether British companies provided equipment and services worth \$180,000,000 — one third of the railway's total cost.

Over 100,000 passengers are already using the line each day, and the 35 km route from Kowloon to the Chinese border at Lo Wu has a capacity to carry an expected 500,000 people between Kowloon and the New Territories in the 1990s.

The line, serving 13 stations, also provides an important link with China and carries a substantial and increasing volume of freight between Canton and Hong Kong. Two prestige Chinese through passenger trains now run between Canton and Kowloon, and there are prospects of an increase in this service. The creation of a modern electrified railway on the Hong Kong side of the route may well provide a model for further consideration of the future status of the railway to Canton. Feasibility studies for the new railway were carried out by Transmark in 1977, since when the organisation has been involved in the design, implementation, staff training and commissioning phases. Altogether about 500 different British Rail specialists have contributed to the scheme with a team of around 30 people being based in Hong Kong at any one time.

Other British companies supplying equipment were Balfour Beatty (overhead electrification); South Wales Switchgear (power supply equipment); Metropolitan-Cammell (rolling stock); GEC Traction (electric traction equipment); Temperature Ltd (air conditioning equipment); Henry Boot (steel track components); Pandrol Ltd (rail clips); Vickers Ltd (carriage washing plant); and Westinghouse Signal Co (signalling equipment).





# See Australia's Sunshine State Catch the Sunlander



Since most of Queensland lies within the tropics, the ideal way to sample its varied delights is by comfortable, air-conditioned train, The Sunlander takes you right into the heart to Queensland's most beautiful country at an easy, relaxed pace.

## The sunshine route

Catch the Sunlander from Brisbane and settle back for a discovery tour through a State of startling diversity. Each town, each city has its own peculiar charm. Farms give way to bushland and great plains, rugged ranges and tumbling falls. Rail: it's the perfect way to get acquainted with a relaxed, friendly State.

KCA 3496/R

## Cairns to Kuranda

If you're in Cairns for some big game fishing, boating, or swimming, make a point of catching the Kuranda tourist train to Kuranda, on the Atherton Tableland. The Cairns to Kuranda route opens up thirty-four kilometres of spectacular waterfalls, gorges and lush tropical greenery.

## About your train

The Sunlander runs between Brisbane and Cairns, in Queensland's tropical north. It is equipped with air-conditioning, first and second class sleeping and seating accommodation, twinettes/roomettes, and Club Car service. The Sunlander has a full Dining Car service where three-course meals and wine may be enjoyed.

## Capricornian to Rockhampton

If you can't spare the time to go all the way to Cairns, catch the Capricornian instead. It takes you right into the holiday centre of the central Queensland coast, terminating at Rockhampton.

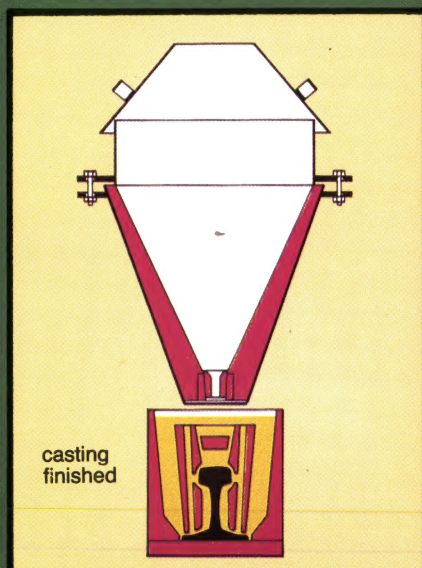
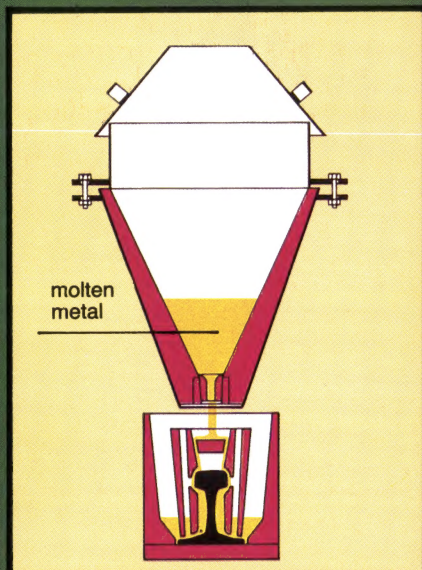
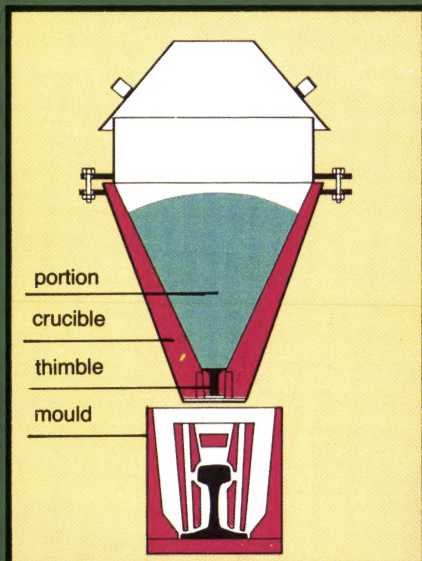
Travel the tropics with



A partner in Queensland's progress  
305 Edward Street,  
Brisbane, Q. 4000. Ph. 225 0211



# Westrak welds the way...



## ...with the Boutet welding process

### Features of the Boutet Process are:

- Three Piece Mould – The moulds are robust and the three piece principle allows for correct centering on the gap and ease of alignment.
- Luting Paste – supplied factory mixed for consistency and time saving on-site.
- Crucible – a single piece unit which with regular, careful maintenance is capable of performing in excess of 40 welds.
- Automatic Thimble – provides for safe crucible tapping at a consistent temperature.
- Portion – larger volume of material provides for efficient mould flushing together with ample calorific input from the molten metal.



Westinghouse Brake and Signal Company  
(Australia) Limited  
(Incorporated in N.S.W.)

Track and Engineering Division  
Holland Street, Northgate, Queensland, 4013  
Telephone (07) 266 1000 Telex AA 41238



# Interview with Westrail's Mike Purcell

Mr Michael Purcell, Westrail's new Chief Traffic Manager in charge of the operational division is the second executive to be appointed by Westrail recently from the private sector. (Mr Bruce Sutherland Westrail's Marketing Director being the first.)

Mr Purcell was educated in Melbourne, gaining a degree in law at Melbourne University and followed up with a degree in economics.

He spent his early professional years with a firm of chartered accountants and also is an Associate of the Australian Society of Accounts and an Associate Fellow of the Australian Institute of Management.

His first association with railways was when he was employed as a bulldozer operator constructing the iron ore railway between Dampier-King Bay and Mt Tom Price in the North West of Western Australia.

As an economist with CRA he was involved in the financing of another iron ore project, the Parabadoo mine near Dampier in Western Australia. He then headed up the Marketing and Corporate Planning Division of Hamersley Iron and five years later became Manager of Railways with that company.

In 1980 Mr Purcell was appointed head of the Department of Mines and Energy in the Northern Territory and later took over Transport and Works. In this later role he assisted in the evaluation to convince the Federal Government of the need to extend the railway from Tarcoola to Darwin. He also gained some experience with road transport and the administration of the aviation industry.

Mr Purcell joins Westrail during a challenging era when the railway is going through a period of transition brought about mainly by deregulation of freight traffics and the introduction of new technologies.

In a frank and forthright interview with Steve O'Brien, "Network's" Perth representative, Mr Purcell explained how he saw Westrail after just two months with the Western Australian rail system.

*Question: What are your first impressions of Westrail the transport organisation?*

Mr Purcell: "Unlike any other company where I have worked the majority of Westrail people seem to be very interested and dedicated to

the organisation. They identify with it and care about the future of Westrail, — that's quite a strength. It's not something that I've seen elsewhere. Mostly people elsewhere see the organisation in which they work as a vehicle for their own lives, their own remuneration . . . I find it a little different at Westrail. Employees here do see that Westrail and their own lives are intertwined and Westrail is important as an entity.

"A second impression is the management of Westrail. The corporate planning and the strategic approach to Westrail's task and the way the corporate planning involves a lot of people in the formulation of the plan is a rare thing.

"Highly competent in my view. It's almost Japanese. I've had quite a bit to do with Japanese industry particularly the steel industry and there you see a similar approach where the corporate strategies are not dictated by a Chief Executive or a Board but involves the workforce, deep levels of the workforce.

"The same attitudes are here at Westrail.

"My third impression and this is the critical part at least in the operations area. I feel employees have had far too narrow perspective of industry operations or economic life. Their experience is narrow.

"They haven't been out of Westrail and in my division it is rare to find an employee who has had experience other than in Westrail. Most personnel in this division started right at the bottom and worked their way up in a pretty prescribed method of promotion and advancement.

"They are ill equipped to take advantage of techniques, to understand modern attitudes, to be competitive to be perceptive about improving their operations, simply because they have not been given any opportunity to learn what the world can tell".

*Question: Would you encourage perhaps work experience in other rail systems or other transport organisations?*

Mr Purcell: "That's one technique. I don't think that it's a profound way of getting experience. A secondment for relatively short period of time is a little superficial. I see it is important our operation division gets some injection

from outside the industry and outside this division.

"I would like to think that this division has something to offer so that employees can learn enough to move out of the industry or to other parts of the railway".

*Question: Westrail has gone through changes in the past and changes are imminent, how do you feel about these changes?*

Mr Purcell: "Railways are a transport mode with potential that will be realised only if Westrail recognises it is in a competitive environment.

"To date railways has been seen as a public service; something analagous to provision of education and health and has been financed by zero cost capital out of internal revenue. In so doing it has pursued strategies which have made it very inefficient.

"There is no doubt in my mind that we can only be seen as competitive as a capital intensive transport mode.

"That is to say we have heavy investment in track, the equipment we use is high cost equipment; therefore the cargo we move has to be suitable for an intensive transport mode, fast turnaround, mainly bulk transport.

"We have to take advantage of the fact that we have economies of scale and conversely we have to make sure we take advantage of the low labour intensity potential of the mode".

"If we can run a train with one man then that's what we should do and not with three men. If we can run trains along a permanent way that is relatively unmanned, like a road, then we should do it.

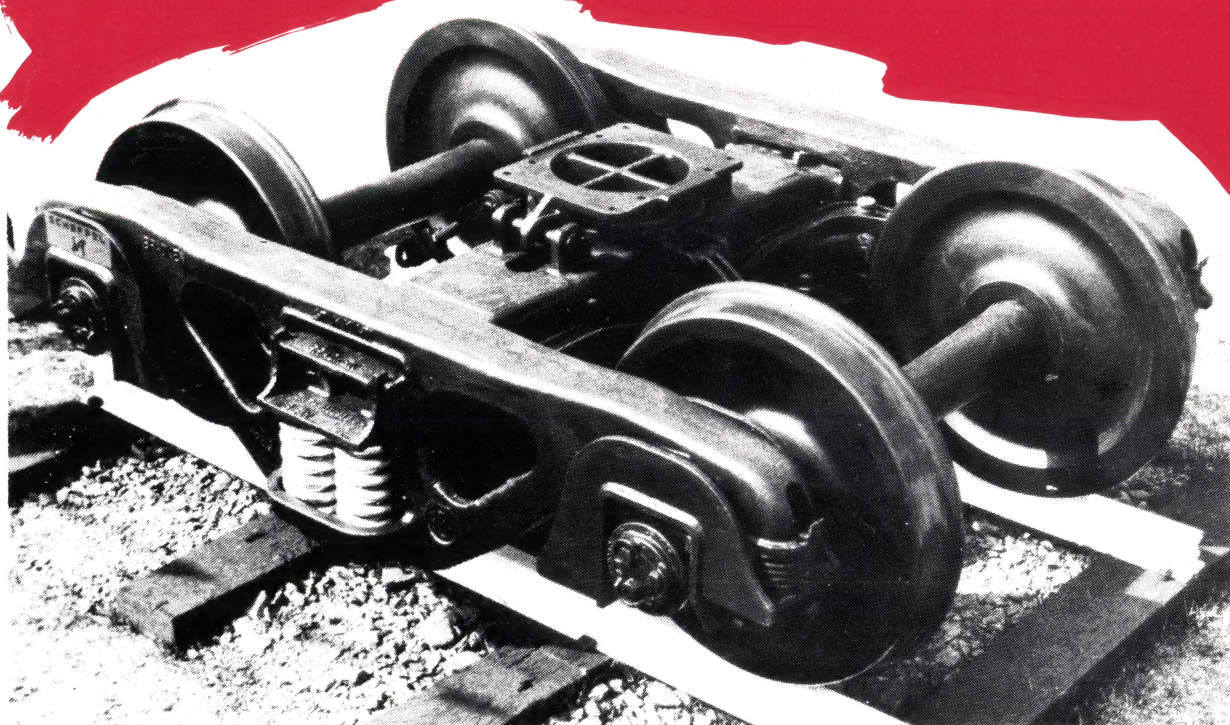
"The challenge is the transition from what, in the event, has become a highly labour intensive operation; and that of course is the dealing with people who have jobs that can't be lightly abandoned and teaching people to think in terms of this transition and not resist it, but work to find a way that can be as painless as possible. It will be painful. Every industry that has to survive has a lot of painful decisions to make and people are hurt. We've got to recognise that it is going to happen. But if we are to survive at all then, instead of resisting, we must concentrate on how best it can be done".





# BRADKEN SCHEFFEL BOGIES

*offer many  
advantages...*



- No flange wear on wheels.
- Minimal tread wear on wheels.
- Bogie maintenance costs greatly reduced.
- Track maintenance costs greatly reduced.
- Increased speed in operation through reduced hunting.
- Increased permissible axle loads.
- Fuel saving as a result of reduced resistance.



**BRADFORD KENDALL FOUNDRIES PTY LIMITED**

Division of Bradken Consolidated Limited

Head Office: 22 O'Riordan Street, Alexandria, N.S.W. 2015.

Sydney, N.S.W. \* Wodonga, Victoria \* Kilburn, South Australia \* Fremantle, Western Australia \* Runcorn, Queensland  
Ipoh, Malaysia \* Singapore \* Dunedin, New Zealand



# From the famous **Comeng stable** comes a powerful new champion...the 86-Class Electric Locomotive!

SRA-NSW takes delivery of first  
of fifty 86-Class thoroughbreds.

This new 86-Class Electric Locomotive from Comeng was destined to be 'best on the track'! Sired by the Comeng 85 class it offers many new & outstanding features! It's more efficient! It's quieter, provides increased range of electric regenerative braking, has improved maintainability and increased crew comfort.

Comeng expertise and experience back it!

Yes! the SRA knows the 86-Class will be a winner like its stablemate the XPT — that's why they backed it with an order for fifty.



*A train  
of thought*

Commonwealth Engineering (N.S.W.) Pty. Ltd.,  
11 Berry Street, Granville, N.S.W.  
Phone 637 0166

